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PACIFIC PULP and PAPER INDUSTRY

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Volume 2
Number 13

DECEMBER, 1928

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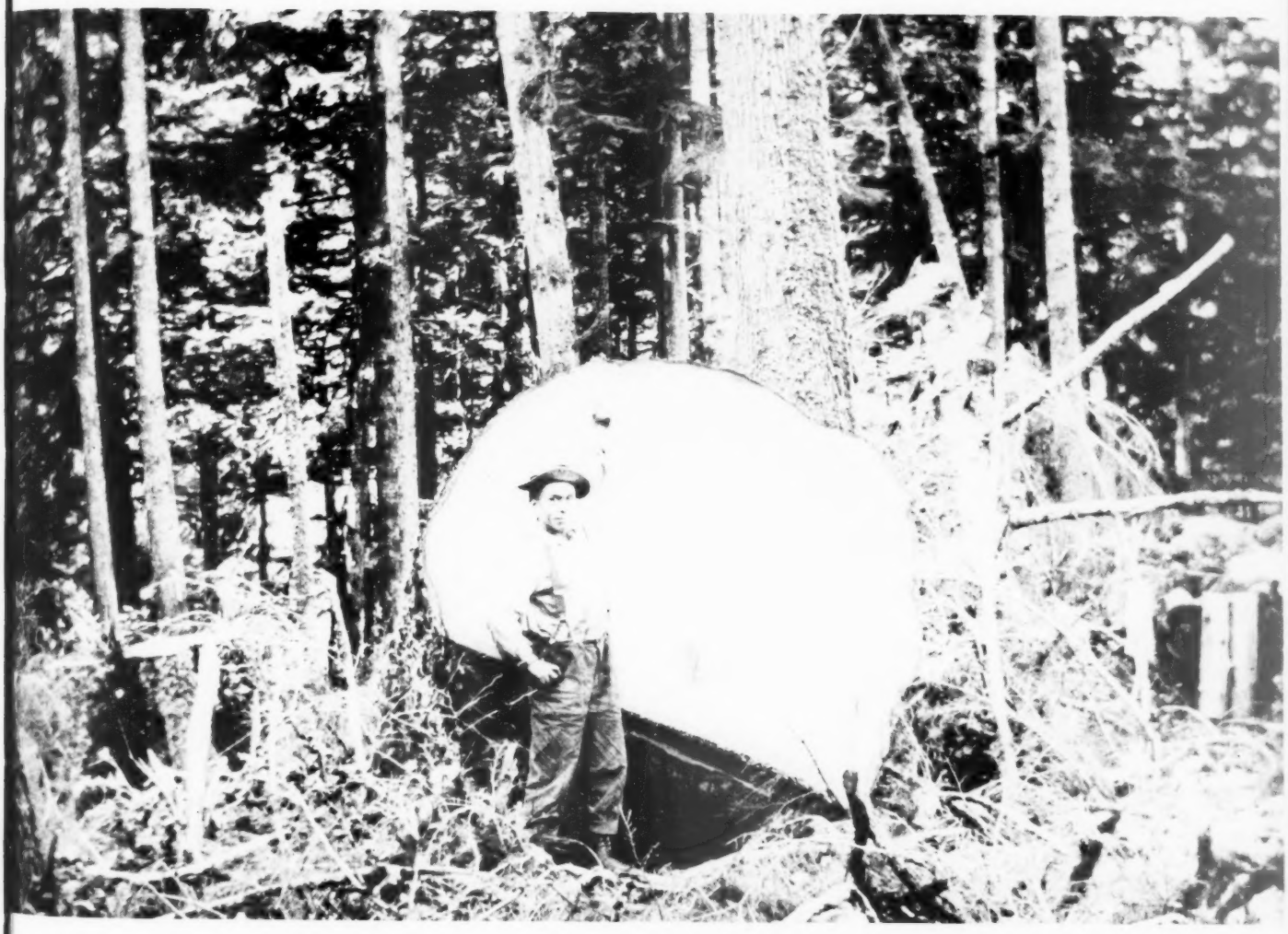

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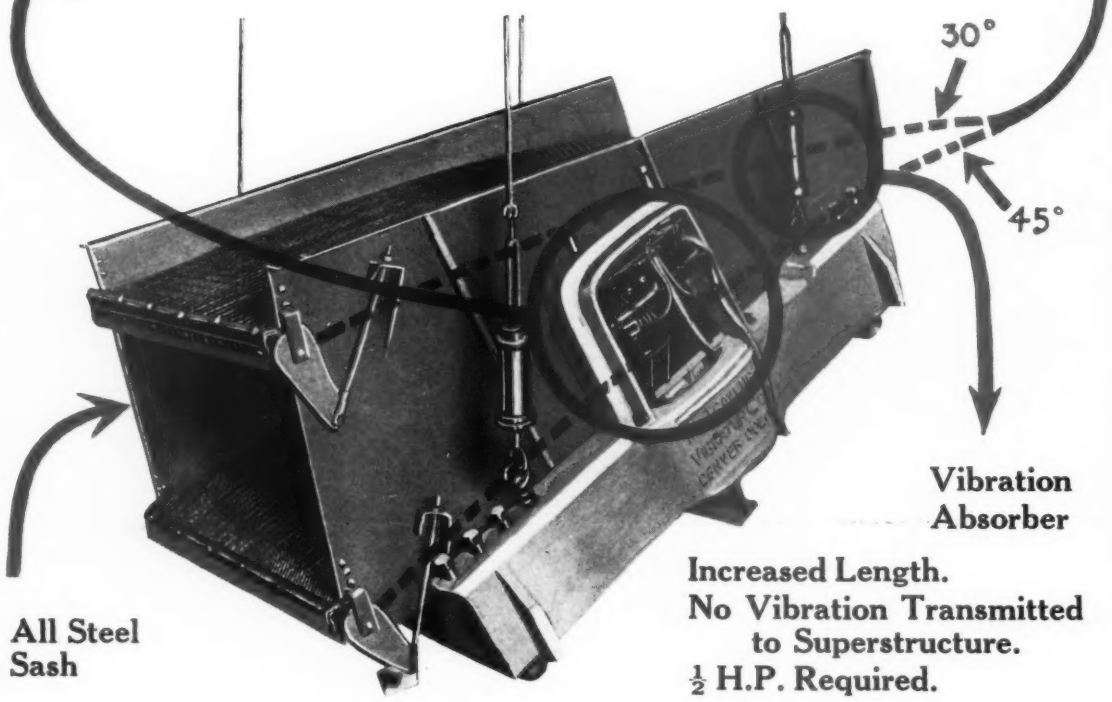
For Screening Chips

Two-slope staggered decks.
No choking between decks.

Positive electric vibration over entire surface.



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Increased Length.
No Vibration Transmitted to Superstructure.
½ H.P. Required.

All Steel Sash

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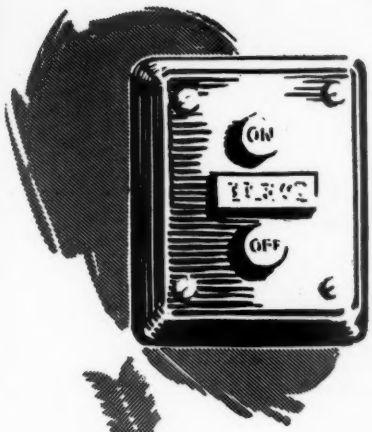
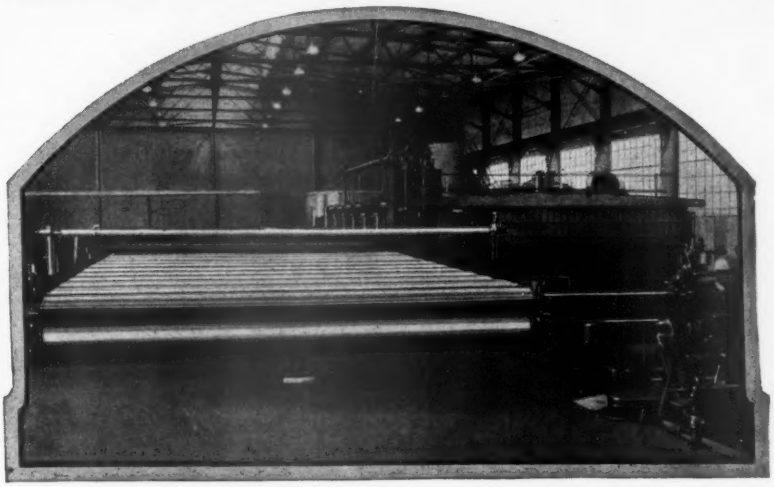
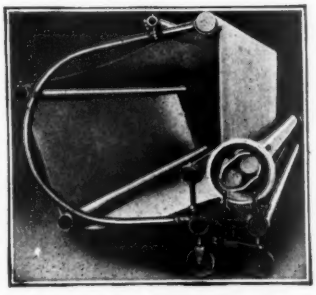




Just press the Button

THE **Removable Fourdrinier** has so reduced the operations necessary in making wire changes that you can hardly believe it. You press a button and the entire Fourdrinier part rolls out by power as a unit. It is so simple that you marvel at it. With the Fourdrinier out of the way, the task of installing the wire becomes an easy one. Nothing to remove, to lift, to carry, to align up. Just drape the wire with the convenient means at the disposal of Removable users—roll the Fourdrinier back into place—and you're ready to go!

Once you see the **Removable** method, you will adopt it. Many mills have had it installed on old machines, much to their satisfaction — and new machines invariably demand it.



The Beloit patented wire carriage makes the transferring of the wire to Fourdrinier a simple and quick operation. Wire is draped into position on carriage and used as a "spare," always ready for action.

The BELOIT way is the MODERN way

BELOIT IRON WORKS, BELOIT, WIS., U. S. A.

The BELOIT

BELOIT IRON WORKS PAPER MACHY BELOIT, WIS.

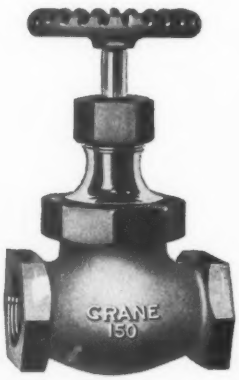
150 Pounds Pressure

CRANE VALVES

2500 Pounds Pressure

Wedge Gate Valve No. 465. Crane makes gate valves of every type.

Oil Separator 03. Crane separators keep steam dry and clean.



Brass Globe Valve No. 7. A many-purpose valve.

Three Valve Lifting Trap. Prevents waste of steam and water.

Multiplying paper mill output by seventeen

In a span of forty-eight years, the paper industry has multiplied its output by seventeen.

Faced with a phenomenally increasing demand, it has penetrated to virgin forests, worked out new processes, pioneered in a hundred departments to speed up production.

It is significant of the sound efficiency of the industry that this greater production has been attained with an increase of less than one tenth in the number of plants—in other words through larger mills and modern power development.

Pioneering in its field, as the paper industry has in its own, Crane Co. has made a distinct and far reaching contribution to the development, control, and utilization of power. It has developed valves and fittings to withstand highest pressures and superheat, studied the needs of industry and designed piping materials to meet them, devised steam specialties and other equipment to cut costs.

Now, as it served the infant industry in 1880, Crane Co. is in a position to supply the giant paper industry with piping materials for every need.

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PICTURED above is an installation of our gravity discharge elevator-conveyors, illustrating one of the numerous purposes which this type of equipment serves. These conveyors may readily be arranged to perform the combined duties of elevating and conveying under a large number of conditions.

In pulp and paper mills and power plants there is no better type of conveyor for handling hogged fuel than this particular design. The buckets are made of heavy steel, supported by two runs of roller chain and may be designed for practically any length.

Our Engineering Department has acquired a fund of valuable knowledge through it years of practical experience in meeting and solving problems of elevating and conveying, and is ready at all times to serve you in designing your conveyor systems, according to the most exacting wants.

For Complete Information on Your Conveying Problems, write

WEBSTER-BRINKLEY COMPANY

SEATTLE, WASHINGTON

Manufacturers and Engineers of Conveying, Screening, Elevating and Transmission Machinery

"Your Paper is made in your Beaters"

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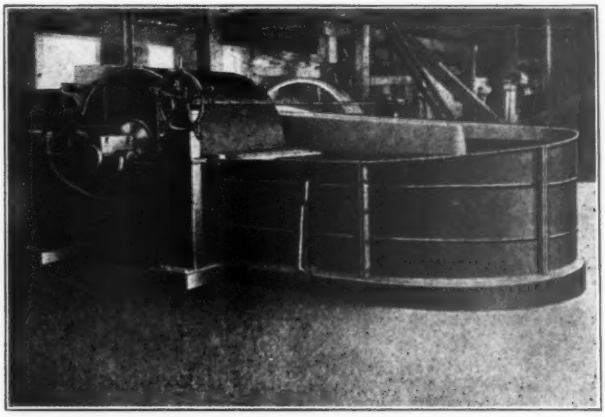
HIGH DENSITY

BETTER CIRCULATING



THE PROBLEM is "how to beat *more* stock into *better* quality with *less* cost for labor and power."

THE ANSWER is "the Dilts New Type, High Density, Better Circulating Beater, built with high tub and with the roll located toward the rear end."

We could rebuild your Beaters to our NEW TYPE design—

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MACHINE WORKS, Inc. FULTON, N.Y.
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International Paper Co.	12
Gulf States Paper Corp.	6
Oswego Falls Corp.	4
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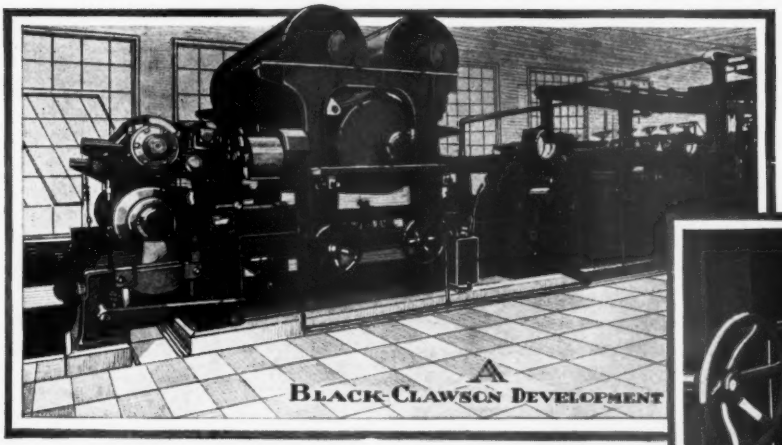
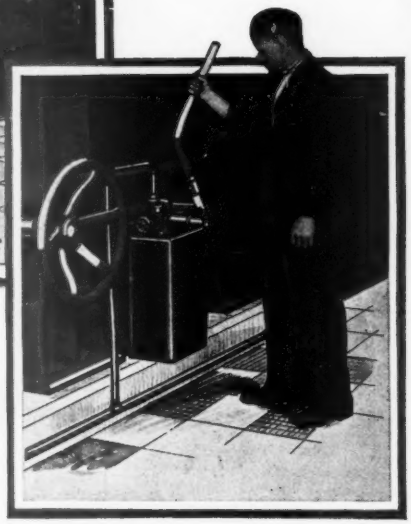
Mobile Paper Mills	2
Consolidated Paper Co.	6
And Many Others	

"Your Paper is made in your Beaters"

for FOURDRINIER and CYLINDER MACHINES





Outstanding Improvements on Press Roll Section

The use of a hydraulic lift to raise top rolls saves time and makes a hard job easy.

The use of the same device to remove bottom rolls enables one man to do quickly and easily a job that has always called for several men—and do it without running the risk of striking the roll face against the machine frame.

The new Save-all eliminates the trays: enables an employee to change felts by merely lifting one end of the new save-all pipe, to slip the felt over the end, then dropping the pipe back into its bearings.

The new oscillating doctor is of flexible Carpenter stainless steel and is an important feature as is the more rugged and dependable new wet broke conveyor. Full deta'ls in the October Messenger, of which you probably received a copy. Locate it, or write for another.

The Black-Clawson Company
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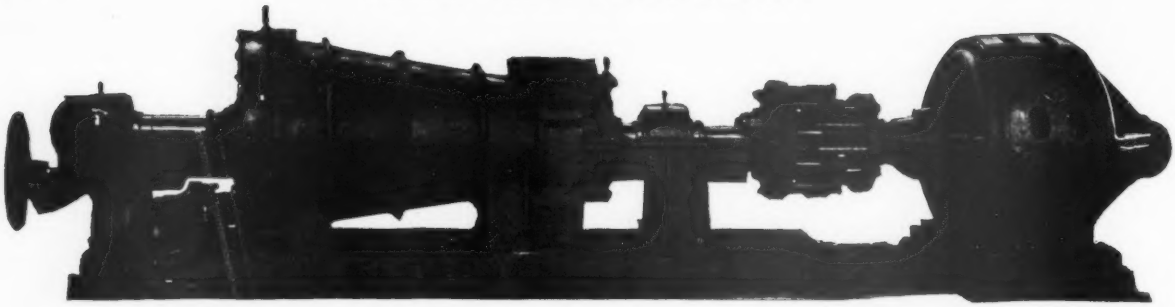
BLACK-CLAWSON

Built with Machine-Tool Accuracy



The No. 2 EMERSON JORDAN

is equipped with

TIMKEN ROLLER BEARINGS

A New Epoch in the paper making industry

The No. 2 Emerson Jordan, shown above, is a masterpiece of refining equipment, having Timken Roller Bearings and Bandless Plug. This sturdy, well constructed bearing application is just another characteristic of Emerson Quality and progressive engineering.

Features to Consider:

(1) Timken Roller Bearings, both radial and thrust, are mounted on taper-bored sleeves

(2) Bearings are enclosed in sealed housings that prevent the bearing troubles generally experienced when bearings are mounted directly on the shaft.

(3) Bearings are N O T mounted directly on the shaft.

THE EMERSON MANUFACTURING CO., Lawrence, Mass.

I'll tell You, Bill

When it comes to Steam Fits the Shartle people in Middletown are putting out the slickest thing you ever saw. We haven't had any steam or oil leakage around the back side since we put in their new Oilless Steam Fits on a "show us first" basis, several months ago. Go out in the plant and see for yourself. We haven't given them a minutes time or attention, and not a drop of oil since they were installed.

A Steam Fit that leaks oil and steam is an unnecessary nuisance and expense around a mill and you know the old fashioned kind are bound to leak, and are always needing oil. These new Shartles put a stop to that, and they're low in price too. They pay back their cost over again in the steam and oil they save. Suppose you get one or two and try 'em out in your plant. You'll never regret it, I'm sure.

The Shartle Oilless Steam Fit

Low in price. Will operate indefinitely without oiling or attention.

They can easily be repaired if this ever becomes necessary.

They are absolutely self-aligning; and are ready for immediate delivery, shipped direct from stock.

We guarantee them to give complete saisfaction. Ask for prices.

SHARTLE BROS. MACHINE CO.
Middletown, Ohio

SHARTLE BROTHERS
DIVISION OF THE BLACK-CLAWSON COMPANY

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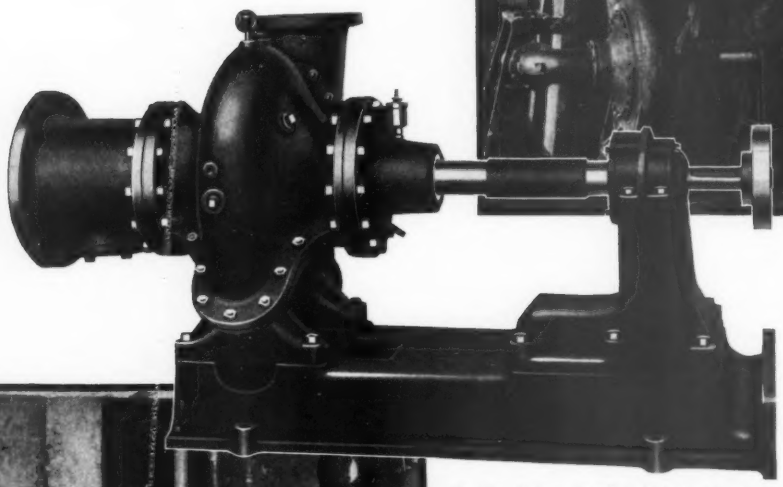
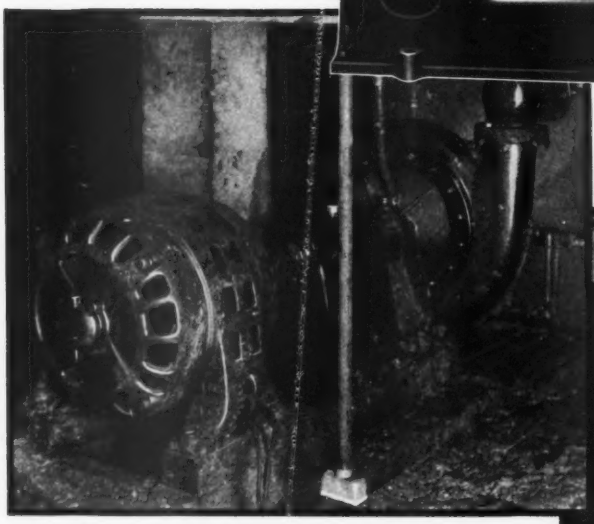
Wherever there are

At the right: An 8" F-M Stock Pump driven by a 75 hp., 720 r.p.m. motor in a Michigan mill.





At the left: A 6" F-M Stock Pump direct connected to a 25 hp., 900 r.p.m. motor in a Louisiana mill. This pump handles 300 gallons per minute of 6 per cent sulphate Kraft stock against 72 ft. head.

At the right: A 4" F-M Stock Pump driven by a 10 hp., F-M Ball Bearing Motor, in a Louisiana mill, handles lime sludge and caustic liquor.

FAIRBANKS-
DIESEL ENGINES

troublesome stock pumping problems—

You can depend upon the F-M PAPER STOCK PUMP to increase production and to reduce maintenance and labor costs

NO CLOGGING or separating of liquids from solids disturbs the smooth, rapid flow of even the most difficult paper stock in mills where Fairbanks-Morse Paper Stock Pumps are installed. In a number of plants these pumps have proved to be the most dependable units yet developed for handling liquids with suspended solids.

The patented Impeller in the F-M Paper Stock Pump, and the smooth passages without sharp edges are responsible for its uniformly satisfactory performance with all grades of stock. Its high shut-off pressure is extremely useful when cleaning out pipes, and the 45° split casing makes it an easy matter to inspect the pump.

There would be no obligation assumed by having our engineers look over your plant and make recommendations.

FAIRBANKS, MORSE & CO., Chicago

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MOTORS . . SCALES

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KENWOOD TANNED FELTS FOR NEWS AND KRAFT MILLS

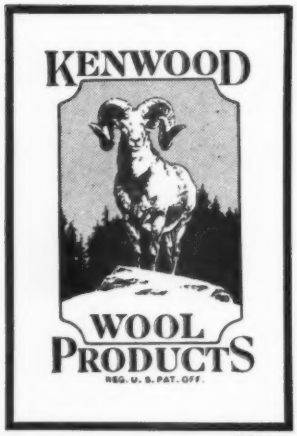
The scientific selection of Wool and fundamentally sound Design are the basis of the superior ABILITY of these Felts.

These factors in addition to the advantages imparted by the Kenwood Patented Tanning Processes are enabling these Felts to best meet the tremendous demands for

SPEED and PRODUCTION

on the latest and biggest machines in the United States and Canada.

F. C. HUYCK & SONS



KENWOOD MILLS, ALBANY, NEW YORK
KENWOOD MILLS LTD., ARNPRIOR, ONTARIO

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Permanent Protection

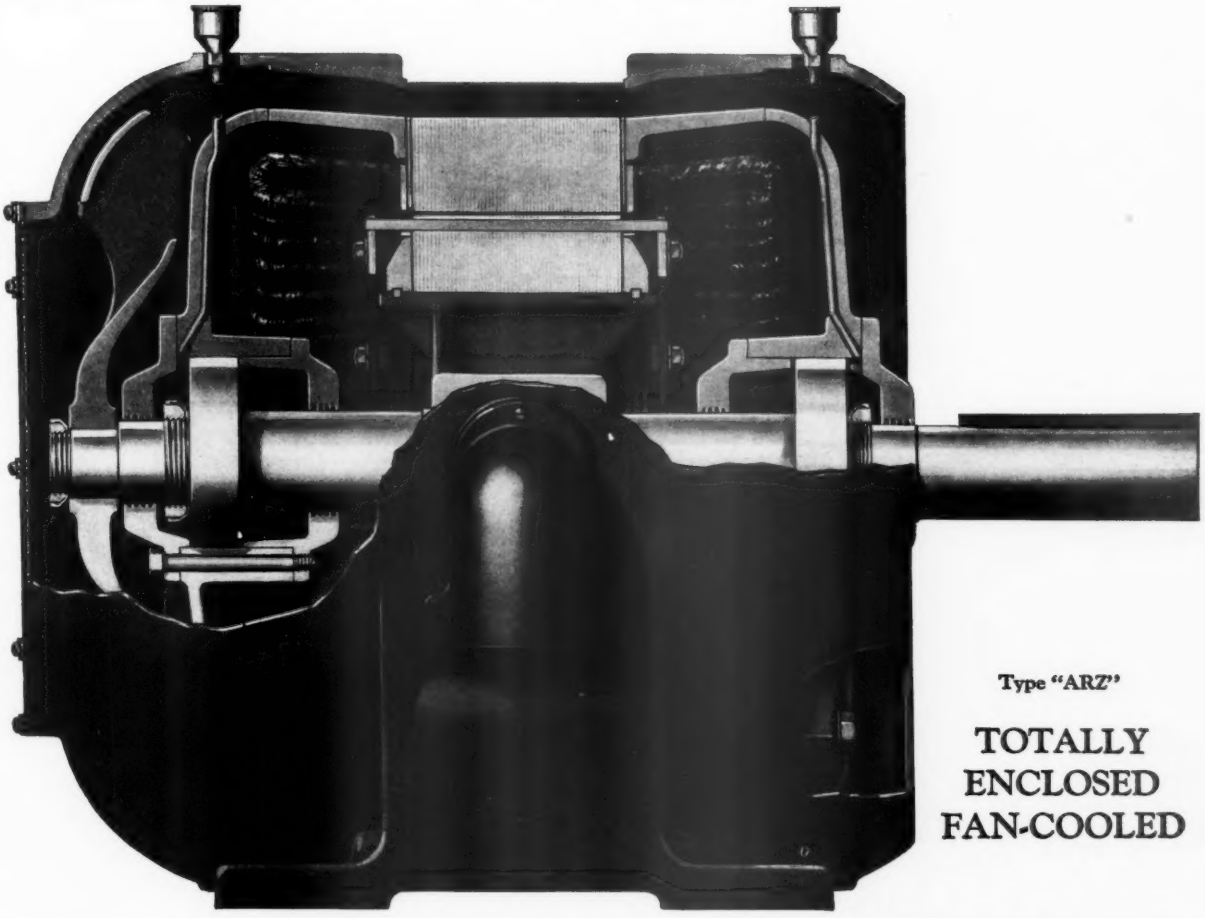
THE only permanent protection the coils of a motor have against destruction from acids, alkalis, metallic dust, and the clogging of air passages, is to seal them against contact.

Allis-Chalmers Manufacturing Company has developed a new type of motor wherein this protection is accomplished without appreciable increase in weight or mounting space over the standard open type motor.

Simplicity of design and sturdy mechanical structure characterize this new motor. Solid cast iron bearing housings with grease-packed bearings form the end closures. Safe temperatures are maintained by blowing a sufficient volume of cooling air around and across those parts which conduct the heat from the interior to the outer surfaces. A circumferential air jacket controls the flow of cooling air.

All well known basic features of Allis-Chalmers motor design are maintained.

ALLIS-CHALMERS MANUFACTURING CO., MILWAUKEE, WISCONSIN



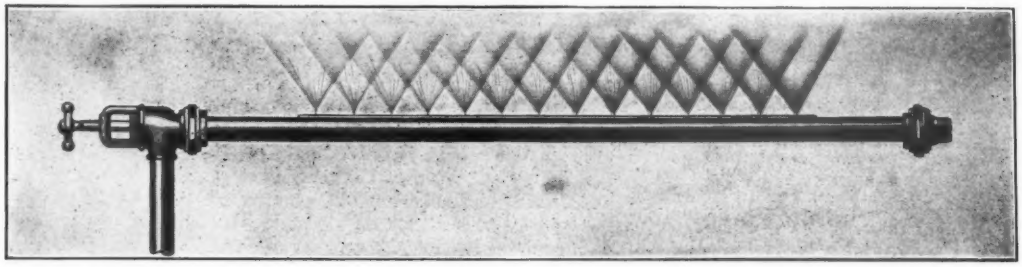
Type "ARZ"

TOTALLY ENCLOSED FAN-COOLED

ALLIS-CHALMERS MOTORS

PAPER MILL MACHINERY

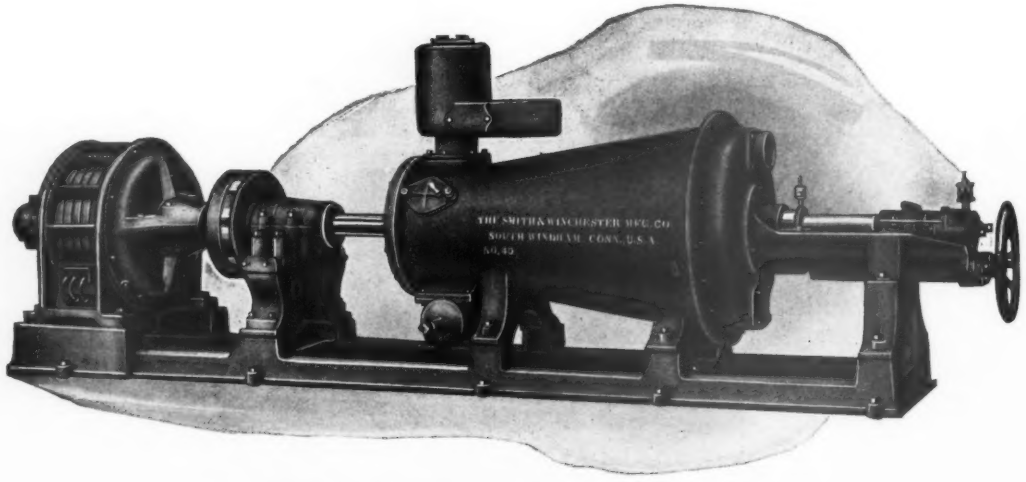
FOURDRINIER—CYLINDER—WET MACHINES



The Rainstorm Shower Pipe

The Undercut Trimmer

PAPER BAG MAKING MACHINERY

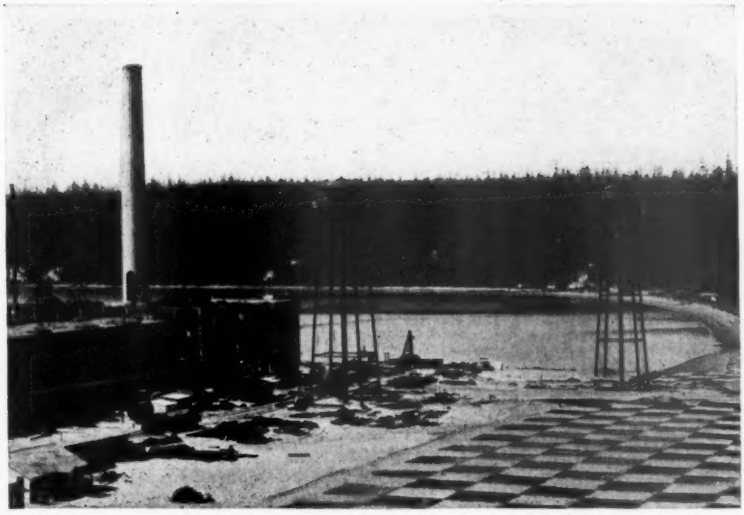


The Smith and Winchester Model 40 Jordan Engine

—ESTABLISHED 1828—

The Smith & Winchester Mfg. Co.

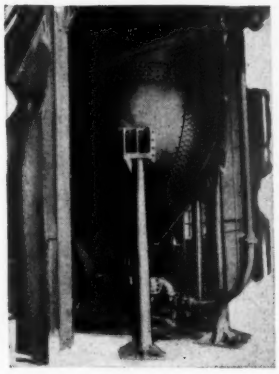
Dept. MFP. SOUTH WINDHAM, CONN.



Two elevated tanks at National Paper Products Company plant at Port Townsend, Wash. They have capacities of 100,000 gallons and 50,000 gallons.

Typical elevated tank installation providing water for fire protection.

Elevated Tanks
Sulphite Digesters
Storage Tanks
Steel Plate Work



Standard Horton sulphite digester at a Canadian paper mill.

Elevated tanks are used at paper mills and other industrial plants to provide water for general service and fire protection. Separate installations may be made for either use, or one tank may be piped for dual service.

This method of providing water is generally known as the gravity type of system. A reserve is held at an elevation, maintaining a constant pressure in the pipes at all times.

Horton digesters are built according to our standard size and design or may be fabricated and erected according to your specifications. Shop work on them is done with modern equipment and great care is taken in order that they may be assembled easily and accurately in the field.

Horton storage tanks are made in a large number of standard sizes, consequently it is possible to secure the benefits of standard construction in the majority of instances. Special designs can be made up, however, where standard sizes will not fit in the available space.

Horton steel plate work includes all other types of plate equipment required at the paper mill. Let us quote you on all your requirements and build it for you at one time on one contract. Write our nearest office.

Storage tank at the Ste. Anne Paper Company, Ltd., plant at Beaupre, Quebec.

CHICAGO BRIDGE & IRON WORKS

Chicago.....2472 Old Colony Bldg.
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San Francisco.....1003 Rialto Bldg.
Seattle.....L. C. Smith Bldg.

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Vancouver, B. C.....501 Standard Bank Bldg.
Bridgeburg, Ont. .....158 Janet Street
Toronto, Ont. ....1429 Northern Ontario Bldg.
Montreal, Que.....116 Bank of Toronto Bldg.

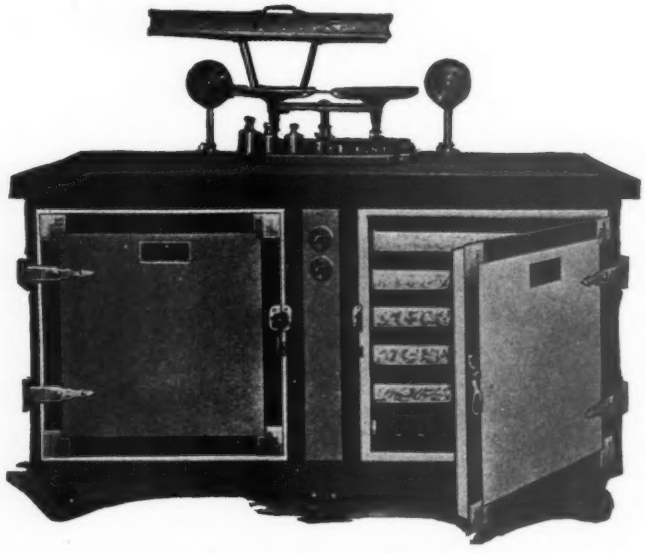
HORTON TANKS

When writing to CHICAGO BRIDGE & IRON WORKS *please mention* PACIFIC PULP AND PAPER INDUSTRY

Accurate Equipment for Testing the Moisture of Your Pulp Will Save You Thousands of Dollars

THE WILLIAMS STANDARD PULP TESTING OUTFIT

Conforms in every detail with the Official Method for the Sampling and Testing of Pulp as approved by the Technical Association of the American Pulp and Paper Industry, the Canadian Pulp and Paper Industry, the American Woodpulp Importers Association, etc.



New Horizontal Model
Work-Table Top, Separate Compartments, Quicker Drying

FEATURES

OVEN—Double walled, electrically heated, with thermostat control.

SAMPLE TRAYS—Removable for weighing hot samples while covered.

THERMOMETERS—High grade six-inch dial form, one in each compartment.

SCALES—Accurate balances with brass weights, counterpoised tray holder and cover.

It will pay you to write today

THE WILLIAMS APPARATUS CO., Park Place, Watertown, N.Y.

ANOTHER ONE OF THE 47 PAPER MACHINERY MANUFACTURERS THAT USES **SKF** BEARINGS

De Laval Steam Turbine Co.

Equipped with the highest priced bearing in the world

YOU MAY BUY A BEARING AS A BARGAIN BUT TRY AND GET A BARGAIN OUT OF USING IT

for

Nothing is apt to cost so much as a bearing that cost so little.

SKF Puts the Right Bearing in the Right Place

30 SKF Bearings Efficiently Transmit Power At The Lowest Cost Per Hour

BACK of the millions of feet of paper every mill produces is the great driving force that makes the wheels go 'round. Power, power and still more power is need for each day's output. It must be reliable and be transmitted efficiently with little maintenance to keep operating costs low.

That is just the job that 30 **SKF** Ball Bearings have been doing for over eight years on this Fourdrinier back drive built by the De Laval Steam Turbine Co. Ruggedness and capacity to meet the hardest operating conditions without attention for long periods make **SKF** the ideal bearings for paper mills. And they never require any adjustments. For these reasons **SKF** have proven themselves the lowest in cost per bearing hour.

2148

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SKF

Ball and Roller Bearings

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CHAINS
Driving and
Conveying
WE make all types of driving and conveying chains for the paper industry, and therefore are free to recommend without prejudice the best one for the purpose. Large stocks assure prompt shipment. Send for new Link-Belt General Catalog No. 500.

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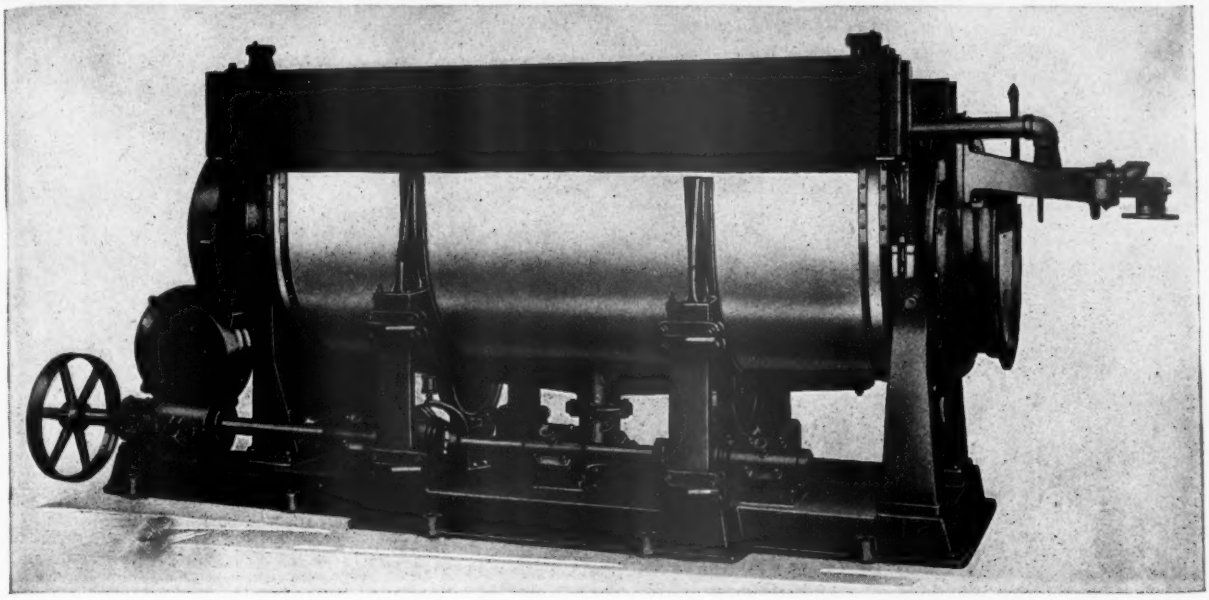


The Screen Most Paper Makers Want

The Bird Screen produces uniformly clean stock continuously.

It has great capacity whether figured by the day or by the year.

Its operating and maintenance cost is exceedingly low.

It handles all grades of stock.

The Bird Screen has proved to be just what paper makers want. Ask us to prove that it is the screen **you** want.

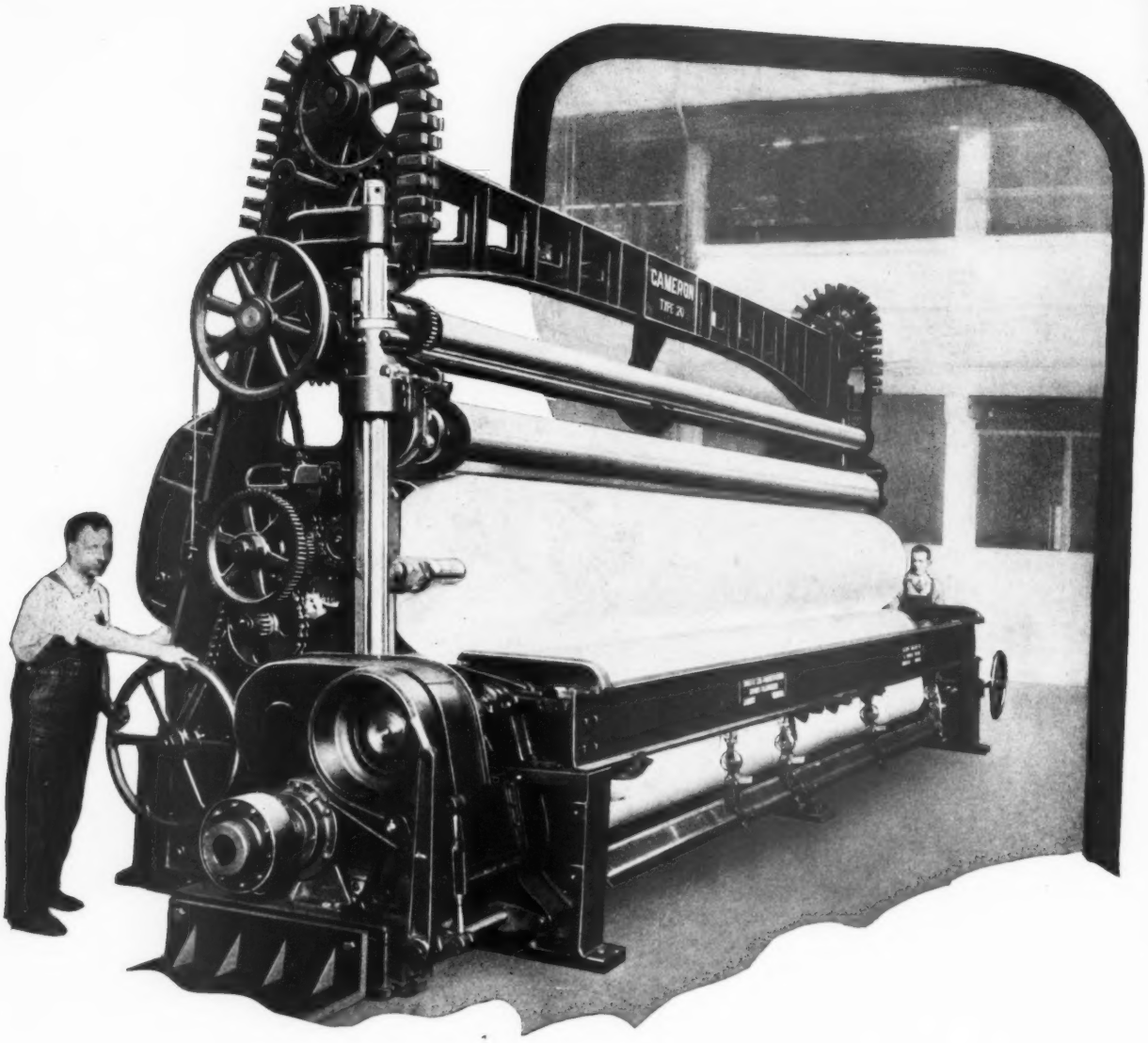
BIRD MACHINE COMPANY
South Walpole - - - - Massachusetts

BIRD MACHINERY

1955

The Bird Pulp Screen

HAUG DESIGN



What Camachine 20 Can Do

SPEED . . . . . —3,000 feet per minute.
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STRENGTH . . . —Flawless material built into scientific design.
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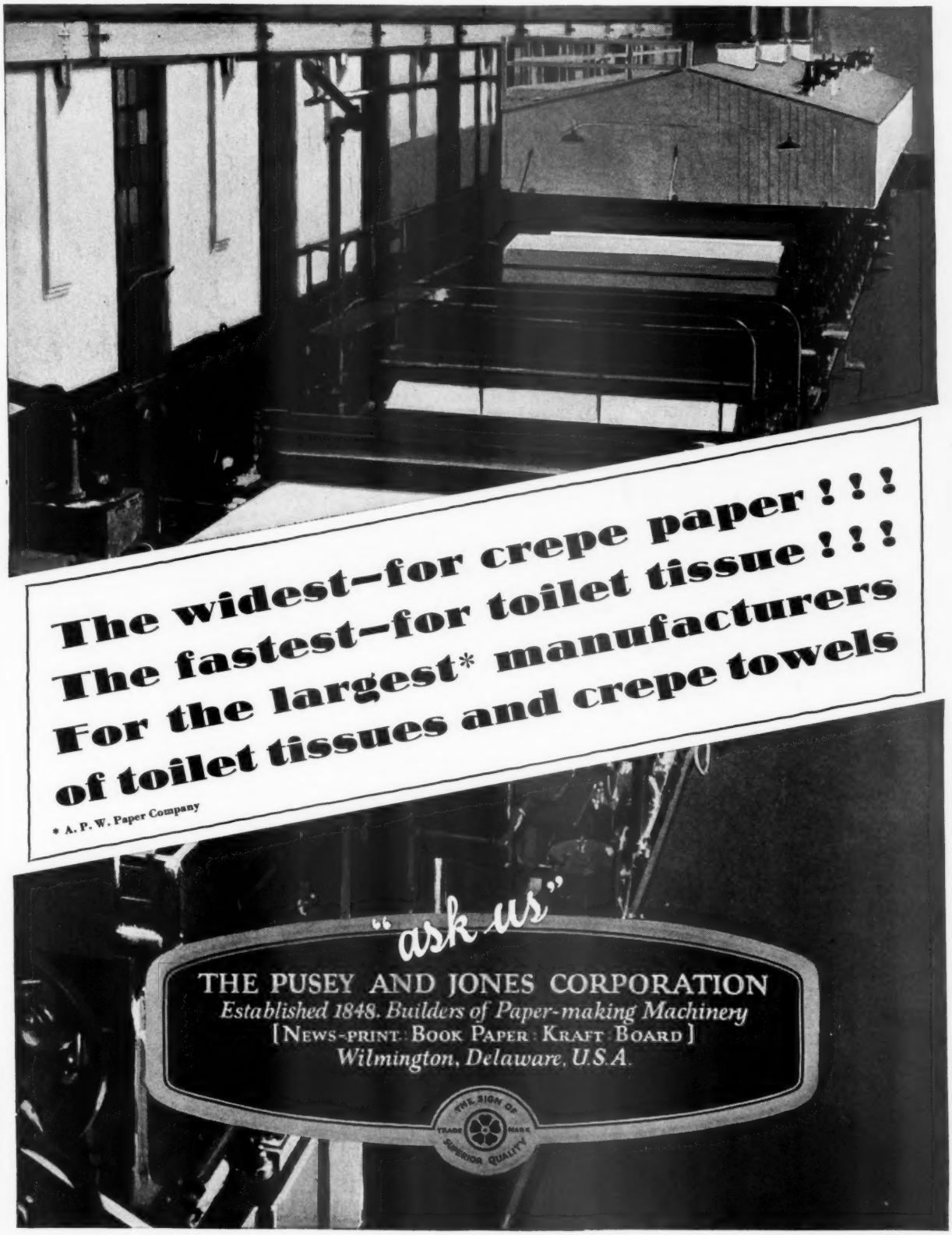
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The fastest—for toilet tissue ! ! !
For the largest* manufacturers
of toilet tissues and crepe towels
* A. P. W. Paper Company
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THE PUSEY AND JONES CORPORATION
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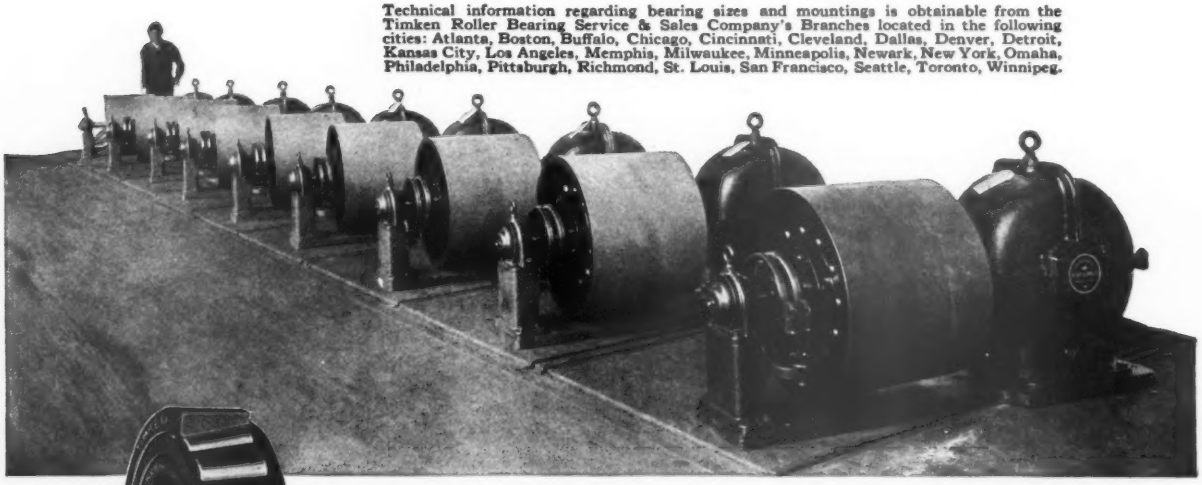

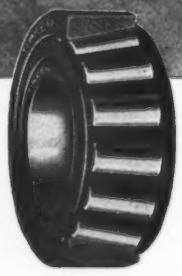

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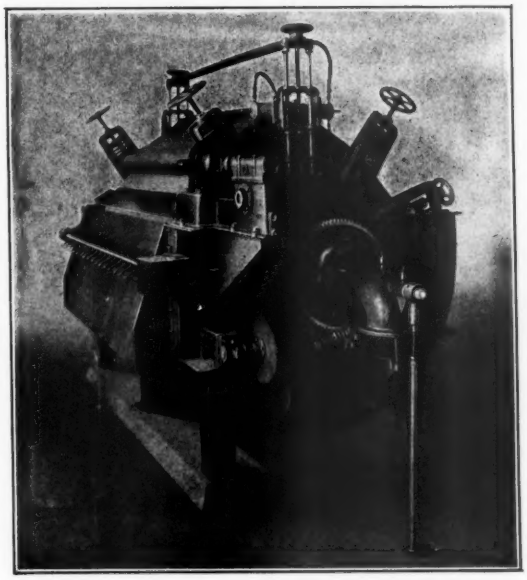
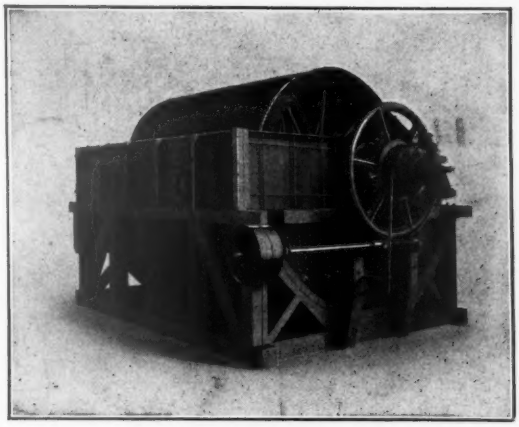


Oliver High Density Thickener



Oliver Bleach Washer

Essential Bleach Plant Equipment

. . . Oliver Filters that provide better stock for bleaching

. . . Oliver Filters that wash the stock better with less water

Oliver Drum and American Disc Type Continuous Filters are best for the following work:

Deckers after Screening
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Oliver United has just the filtering equipment needed for bleach work.

The Oliver High Density Thickener that delivers the dense stock needed for good bleaching and at the same time practically eliminates fiber losses.

The Oliver Bleach Washer that reduces the CaC12 content to only traces or even better—and again without fiber loss.

Oliver Filters can be installed in new mills as integral parts of the entire flowsheet. Or they can be installed in existing mills with little change in the present flowsheet.

In either case, they are the best investment the bleach plant can make.

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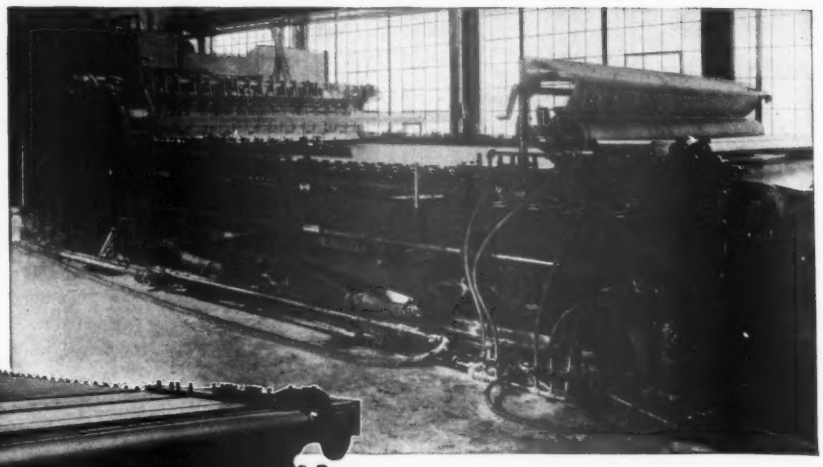
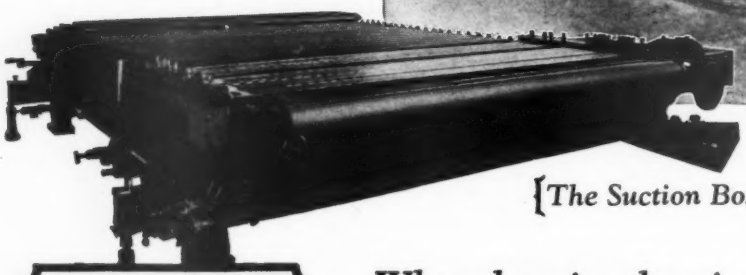
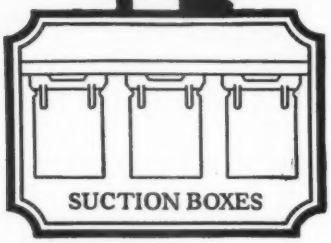


¶ Views of Fourdrinier in position, and as it appears when removed.



{The Suction Boxes are never disturbed}



¶ Suction Boxes are not disturbed. The Fourdrinier rolls out as one unit, without disassembling.

When changing the wire, do you—

"Take it apart and put it together" —or just ROLL IT OUT?

SUCTION BOXES ARE HEAVY—and it isn't hard to injure them. No machine is helped by being taken apart and put together every few weeks. While the gang is certainly careful, and speedy, and has wire changing down to a science, the Fourdrinier suffers every time a union is broken, a nut loosened, or a bearing disturbed.

Save this wear and tear. Just ROLL IT OUT, place the new wire, and roll it back again. We can design and build Rice Barton Removable Adjustable Shaking Fourdriniers for your present machines.

Let us go into the problem with you, and submit an estimate.

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RICE BARTON & FALES INC.
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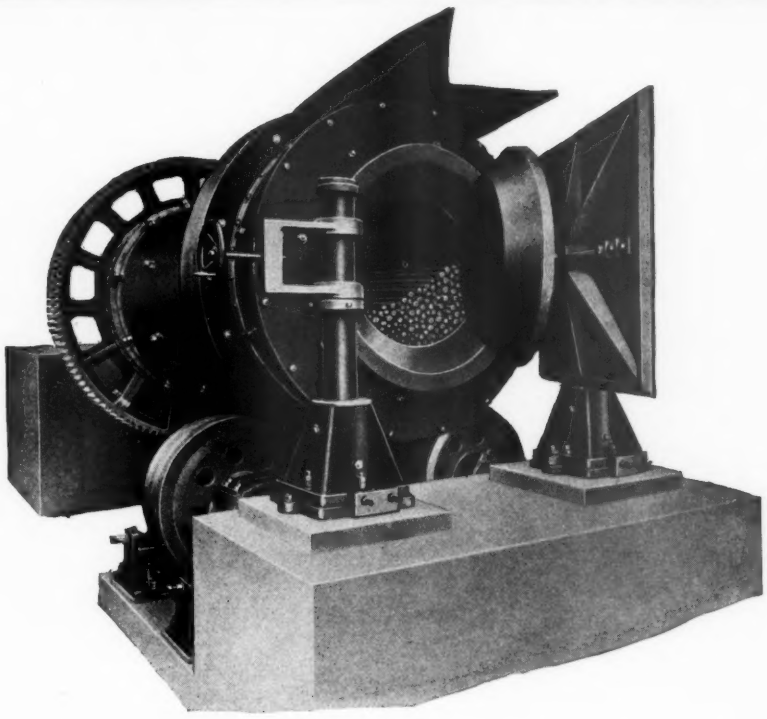
Removable, Adjustable, Shaking

FOURDRINIERS



Would You Like to Secure These?

....*better quality fiber*
....*more uniform pulp*

IN a plant recently visited, where they are using Marcy *Open End* Rod Mills, the manager made this remark:

> "We have noticed two good results in particular since putting in the rod mills. We now caliper evenly across the sheet and have practically eliminated breakage on the machine. These two results alone have sold us on Marcy Rod Mills."

The even caliper comes from the more uniform pulp; the elimination of breakage from the better, stronger fibers. And the Marcy Rod Mill produces these results with considerably less power.

Marcy *Open End* Rod Mills have definitely established their place in the production of pulp and paper. Why not make a place for them in your mill?

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Woodpulp Agents

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Paper Distributors

Mill agents and dealers for the distribution of all classes of paper in the Eastern markets.

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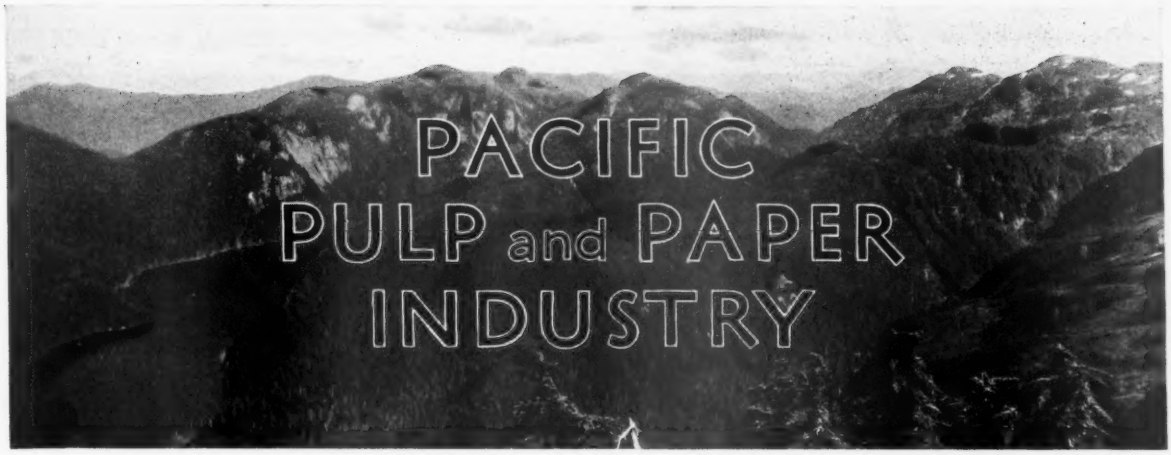

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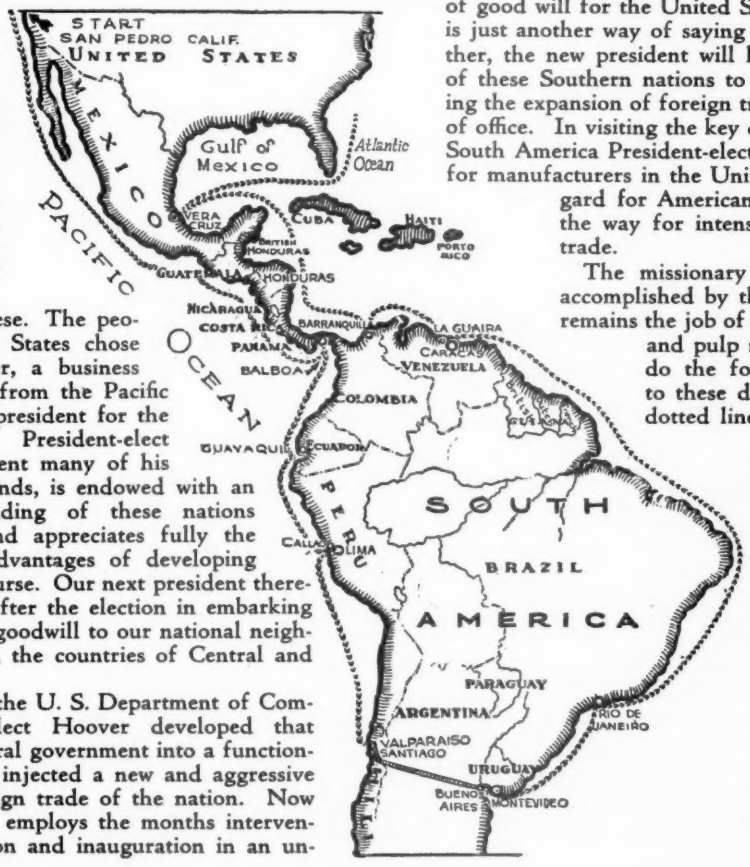
Vol. 2 DECEMBER, 1928 Number 13

The Follow-Up Is *Your* Business

Hoover's Tour of Latin America Opens the Way for Great Export Trade

NEVER before have the paper and pulp mills of the Pacific Coast sent out such a super salesman to call on the trade. To be sure, he isn't going to bother with the individual order, his chief stock in trade being good will, but one can rest assured that there is real business on his route awaiting only the proper kind of follow up work.



The facts are these. The people of the United States chose Herbert C. Hoover, a business man and engineer from the Pacific Coast, to be their president for the next four years. President-elect Hoover, having spent many of his years in foreign lands, is endowed with an unusual understanding of these nations across the seas and appreciates fully the possibilities and advantages of developing commercial intercourse. Our next president therefore lost no time after the election in embarking upon a mission of goodwill to our national neighbors on the South, the countries of Central and South America.

As Secretary of the U. S. Department of Commerce President-elect Hoover developed that branch of the federal government into a functioning body that has injected a new and aggressive note into the foreign trade of the nation. Now he most profitably employs the months intervening between election and inauguration in an unprecedented trip to the lands of Latin America. The result will be the creation of an incalculable amount of good will for the United States, and good will is just another way of saying good business. Further, the new president will have a fresh survey of these Southern nations to serve him in assisting the expansion of foreign trade during his term of office. In visiting the key cities of Central and South America President-elect Hoover will create for manufacturers in the United States a new regard for American products and pave the way for intensive development of trade.

The missionary work having been accomplished by the super-salesman it remains the job of the individual paper and pulp mill on the Coast to do the follow up work, tend to these details of getting the dotted line graced with signatures. Here is a situation where the reward in business will be measured directly by the amount of effort expended. President-elect Hoover has been selling good will for the Coast mills in a most effective manner, and to pass idly by this valuable advantage gained is akin to throwing profits away.

There are two very excellent reasons why the Coast mills should give foreign trade possibilities the closest consideration. In the first instance there exists a condition of over-production on an international basis on many grades of pulp and paper. Secondly, the increasing tonnage being developed on the Pacific Coast is rapidly pushing beyond the consumption needs of the Coast. Outlets must be found. The situation will be eased if the foreign as well as the domestic market is cultivated.

A survey of United States export statistics shows that about $2,125,000 worth of paper and paper products are exported from Pacific Coast ports annually. This figure represents about 8½% of the United States total. Referring more specifically to Latin America the accompanying table indicates the amount this group of countries is spending annually for paper and paper products, and the comparatively small portion of that total business that the United States as a whole is getting.

Pacific Coast mills, with many operating economies in their favor, with deep water locations to facilitate shipping, hold a more than ordinary advantage for developing foreign trade.

Another point which is well to consider is that the present paper and pulp demands of these South and Central American countries is not the true measure of the market. The tendency in these countries is constantly toward broader education and higher standards and with that tendency is found a steadily increasing demand for paper of all kinds.

There is business to be had in Latin America. The good will is there now to be capitalized. The details of getting the business remain up to the manufacturer, and in that the U. S. Department of Commerce through its central office at Washington, its branch offices in the principal Pacific Coast cities and its trade commissioners and commercial attaches in trade centers throughout South America stand ready and willing to help.

Exports of Paper and Paper Products From the West Coast of the United States

Year	California	Oregon	Washington	Total	Per cent of total U.S.
1922	$1,229,228	$286,059	$537,457	$2,052,744	8
1923	1,165,231	162,618	602,245	1,930,094	7½
1924	1,521,177	136,669	535,354	2,193,200	9
1925	1,065,256	597,303	366,128	2,028,687	8
1926	1,272,174	717,522	428,455	2,418,151	9
Total	$6,253,066	$1,900,171	$2,469,639	$10,622,876	
Av. per yr.	1,250,613	380,032	493,928	2,124,575	8½

Imports of Paper and Paper Products Into South America

Country	*Total Imports 1926	**From U.S. 1926	Total Impts. 1925	From U.S. 1925	Total Impts. 1924	From U.S. 1924
Argentina	$20,503,736	$ 832,272	$22,118,771	$ 858,651	$17,871,618	$ 683,520
Bolivia	(1)	9,007	(1)	9,335	235,440	13,253
Brazil	9,614,539	295,392	7,897,596	318,850	7,750,050	303,792
Chile	3,426,754	191,611	3,002,990	187,993	3,232,079	157,391
Colombia	(1)	361,336	(1)	386,181	1,757,126	336,417
Ecuador	(1)	38,999	229,280	55,680	288,819	44,935
Paraguay	(2)	378	(2)	3,215	(2)	582
Peru	(1)	144,755	151,001	142,494	153,759	193,433
Uruguay	(1)	128,211	1,057,826	100,221	726,652	89,607
Venezuela	(1)	319,781	679,146	305,049	568,748	224,729
Total		$2,321,742	$35,136,610	$2,367,669	$32,584,291	$2,047,659

*Based on official statistics of the country in question. **Based on United States export figures. (1) Not available. (2) Not shown separately.

No Immediate Program For B. C. Company

Reports that British Columbia Pulp & Paper Co., Ltd., is about to proceed with a $500,000 construction program in the near future were denied by Lawrence W. Killam, president. "It is true that we have plans for extensive building some time in the future, especially in the way of waterpower development," said Mr. Killam. "But I'm afraid they are a long way from materialization."

The ultimate scheme of waterpower development by B. C. Pulp & Paper was outlined in PACIFIC PULP & PAPER INDUSTRY some months ago. During the present year the company contented itself with building new cleaning and drying accommodations, installing new screens and the building of a tunnel to tap the water supply at Henrietta Lake, as protection against drought.

May Let Port Mellon Contracts Soon

Construction of the new wharf at Port Mellon, B. C., still represents the chief job now under way in connection with the Vancouver Kraft Mills, Ltd., expansion program. Until the arrival in Vancouver of representatives of the Leadbetter interests, owners of the mill, details in connection with further development will not be made known. President F. W. Leadbetter is expected to make a visit to the mill this month and during his stay in Vancouver contracts for mill and power house will probably be awarded. Whether or not the program will include provision for waterpower development has not yet been definitely determined.

Making Engineering Survey of CW Mills

It is understood that V. D. Simons, consulting pulp and paper mill engineer, together with some engineers who have been associated with the Crown Willamette Paper Co. for many years, is now conducting a thorough survey of all the Crown Willamette mills, including Pacific Mills, Ltd., at Ocean Falls, B. C. The object of the survey is primarily to determine what further operating efficiencies may be effected. While nothing has been announced officially it is believed that the surveys will lead to considerable revision in the present plants with a considerable amount of new machinery installation and some new construction, possibly some new construction for additional capacities.

Tumwater Revising Plans

It is learned that the Tumwater Paper Mills Co., at Tumwater, Wash., are expected to complete a refinancing program at an early date, probably before the close of the year. No details have as yet been officially announced.

Second Oregon Coast Mill Planned

Will Build 100-Ton Sulphite Mill Near Reedsport

PLANS for the immediate construction of a 100-ton sulphite pulp mill on Dewar's Island in the Umpqua River about a half mile from Reedsport, on the Oregon coast, came to light last month, with the announcement of the incorporation of the Umpqua Pulp & Paper Co., in that state. Approximately $1,500,000 will be spent in the construction and equipment of the plant. W. L. Nederhoed of Portland is one of the guiding spirits of the new venture. The names of the other promoters were not divulged.

Negotiations were completed two months ago for the purchase of the 150-acre island on which the mill is to be built. A part of the island is of solid rock, the remainder consisting of tidewater flats which will be used for booming logs. By building on the rock base the promoters expect to save heavy preliminary construction costs.

Timber Plentiful

Water for operation, which will be supplied from Tahkenitch Lake, will be delivered through a 24-inch pipe line. The lake has 35 square miles of watershed and 95 miles shoreline, thus insuring ample water, the promoters claim. It was pointed out that 10,000,000 gallons daily could be supplied if needed, should the company decide on an expansion program later.

A plentiful supply of Sitka spruce and Western hemlock is available in that district, although no disclosures were made regarding plans for supplying material for making pulp. Both water and rail transportation are available, a line of the Southern Pacific passing directly over the island. A spur from the main track to the mill is planned. Logs will be floated in from the Smith and Schofield rivers, as well as the Umpqua.

Shipments will probably be made by rail to Marshfield, thence by steamer to eastern and foreign markets. It is expected that Japan will provide an outlet for most of the company's product. Tentative contracts for the major portion of the mill's output are under consideration.

Portland Office

No paper is to be made for the present. However, it was intimated that plans may be developed for not only making paper, but for manufacturing paper specialties also.

Efforts to learn the name of the engineer, who was said to have been retained sometime since, were fruitless. Refusal to give for publication the names of the men interested in the enterprise was likewise made. However, Mr. Nederhoed was declared to be financially interested, and it was asserted that those financing the venture will be actively engaged in the mill's operation. While the question of financing was said to be virtually arranged, no specific information was given.

A meeting was to be held late in December to decide on officers and personnel. Approval of plans and specifications are to be made at that time, it was said. Temporary offices of the company are in the Bedell Building, Portland. Permanent offices are to be opened shortly in that city.

Mr. Nederhoed, who was originally in New York, has been engaged for several years in the import and export business, eight years of which were spent in the Orient, where he handled domestic paper and Canadian pulp. For the past year, he states, he has conducted an exhaustive investigation of the pulp and paper resources of Oregon. Decision to locate a pulp mill in southern Oregon was made several months ago, but plans were kept quiet until the incorporation filing was made.

Actual construction on the new industry will be started shortly after the first of the year, Mr. Nederhoed stated. It is expected that the plant will be in operation early next fall.

Portland Pulp Mill Planned

Announcement of a new 100-ton sulphite mill to be built within a few miles of Portland on the Willamette River is expected to be made shortly. A unit for the manufacture of paper specialties is to be constructed in connection, it is learned, although denial was made that a paper mill would be built also. The proposed enterprise will represent a total investment of more than $3,000,000, half of which is to be furnished by a Portland group of six or eight timber operators, with the other half being furnished by the principals of the new concern.

While definite information is lacking it was learned that two or more sites would be started in the early spring. The names of the men promoting the industry were not revealed.

The projected mill is to be established in connection with a sawmill already in operation, it was intimated.

Street rumors link the names of H. E. Jones and Charles W. Smith of the Central Paper Co., Muskegon, Mich., with the enterprise. Mr. Jones is secretary of the Central company, and Mr. Smith, general engineer. Mr. Jones was a Coast visitor about a year ago, his visit being for the purpose of investigating pulp and paper mill possibilities for the late E. D. Muir, then head of the Central Paper Co. Mr. Muir's recent death, however, terminated plans for a proposed mill to be erected by him. Since then, it is understood, Messrs. Jones and Smith have matured plans launched by Mr. Muir. A report is current that Mr. Jones would be general manager of the plant.

Half of the capital is said to have been already raised by an Eastern finance man, the other half to be supplied by Portland timber operators who have been working quietly with the Eastern principals for several months.

Groundwood Mills Are Busy

The rains in the beginning of November raised the Willamette River at Oregon City sufficiently to allow the annual grinding season to commence, giving employment to over 250 men in the Hawley and Crown Willamette plants in the wood preparing and grinding departments.

The Oriental Market Today

An Interview with Mr. O. A. JORGENSON,
Treasurer and Assistant Manager of British Columbia Pulp & Paper Co., Ltd.

JAPAN and the Far East are destined to gain steadily in importance as markets for Pacific Coast products. This statement is based on personal observation made during a two months' visit to Japan in the interests of trade investigation from which I have recently returned.

O. A. JORGENSON
Steffens Colmer Studio, Vancouver

One of the most encouraging things I discovered is that China is coming back as a major market. The feeling in Japan among bankers and business men in a position to study the economic situation advantageously, is that conditions will gradually become stabilized due to the cessation of hostilities in China and that Japan will regain its lost commerce there. That is important to us on this side of the Pacific who supply Japan with pulp and paper and other materials because Japan is recognized as the natural distribution center of the Orient now and is well adapted to supply China with paper manufactured from pulp made in Canada or the United States.

Japan will demand an increase of ten per cent annually in its pulp imports and the country will look mainly to Canada and the United States to meet that requirement. Canada, at present, supplies 60 per cent of the Japanese pulp imports; the Pacific states and European countries the remainder. I have little fear that this demand will ultimately be met by Asiatic sources of supply. Japan is still obtaining large quantities of pulpwood from the island of Saghalien, and the forests of the Japanese kingdom itself will continue to supply a certain percentage of the nation's requirements for some years, but the pulpwood forests of Siberia and Manchuria are not yet commercially accessible. In fact, it would probably pay the Japanese to import logs from British Columbia rather than to attempt exploitation of the Russian forests on an extensive scale.

It has never been a paying proposition for paper mills on this side of the ocean to cultivate the Japanese paper market because of the lack of standardization in requirements. There is such a variety of equipment in the Japanese plants that their buying has to be in comparatively small and assorted lots, the result being that Japan is always denied the benefit of buying on a standardized basis in a large way and of reaping the reward in lower prices. Nevertheless Japan still imports about 20 per cent of its paper, divided between Canada, Germany and Scandinavia.

While Japan imports about 70,000 tons of pulp of all kinds, annually, the country produces about 400,000 tons itself. This ratio is not likely to be disturbed very much in the near future, I believe, although Japan's consumption will probably increase about 10 per cent annually.

The merger germ has caught hold of the pulp and paper industry in Japan, as elsewhere, and it is rapidly spreading. The tendency today is to place the industry in the hands of half a dozen or so of the strongly entrenched companies. Scores of smaller organizations have either passed out of the picture altogether or entered consolidations in this way during the last few years. The first ten mills now operate 140 paper machines, so that is evidence of the increasing capacity of the individual plants. The paper industry in the Far East is fast assuming gigantic proportions. Japan's production of paper last year exceeded 500,000 tons. True enough, their plants are not to be compared with the larger ones in this country, but they are certainly not to be ignored.

Japan is rapidly recovering from the ravages of earthquake and financial collapse and there is a material improvement in the physical aspect of Tokyo and Yokohama since my last trip two years ago. The lumber trade is growing more active, and will probably continue so for two or three years. The buying is now in the hands of more substantial firms, the weaker ones having been eliminated.

Japan has a very long history of 2,588 years since its foundation as a empire, and together with the development of civilization, its industries have been growing in volume and number. The Japanese people may well be proud of their pulp, paper and lumbering industries, as well as their cotton textiles and silk production; their chemical industry, shipbuilding, iron and steel products, shipping and foreign commerce.

St. Helens Stock Held High

"For a non-dividend paying common stock, St. Helens Pulp and Paper shows no sign of a descent from its present perilous height," remarks an Oregon publication. "It is quoted at $175 bid, $185 asked, against $160 and $175 bid and asked prices a month ago. Perhaps earnings of this company, known in detail only to insiders and roughly by people who are not at liberty to disclose them, justify these prices offered and asked by holders. No matter what the earnings may be, investors in a pulp and paper common at these prices must remember that a dividend rate must be determined by directors, who in the instance of St. Helens are hard-headed business men and manufacturers who appreciate the desirability of building up substantial reserves to bulwark a pulp and paper mill against a turn in the market."

St. Helens Pulp & Paper Co. has a daily output of 60 tons of kraft paper. It began production in December, 1926.

May Revive Kootenay Project

Several things have happened in recent months that may indicate that southern interior British Columbia is yet to have a pulp mill. Or it may be in Northern Idaho, for the interest seems to center where the province and state join. The facts are somewhat as follows:

The Kootenay Pulp & Paper Co. was incorporated at Victoria, B. C., in 1920 with headquarters at Nelson, in the interior. The company made application to the Comptroller of Water Rights in British Columbia for license to take and use 4,000 cu. ft. per second of water from the Kootenay River, which stream runs north from the Idaho panhandle into British Columbia. The application made by the Kootenay company interferes with and is subsequent to another right on the same site, and no development was ever undertaken.

In the spring of 1927 the project was revived with an announcement by Howard S. Amon of Portland, Ore., that, using the Kootenay charter as a starting point, it was planned to develop power and establish a pulp mill. The total investment was to be about $4,000,000.

Idaho Shows Interest

On December 5, 1927, the Oregon-Canadian Pulp & Paper Co. filed articles of incorporation in Oregon and E. F. O'Flynn was named as president. He is manager of the General Bond & Mortgage Co., 1210 Yeon Building, Portland. Mr. Amon had for some time made his office in Portland at the same address. Mr. O'Flynn indicated a knowledge of the British Columbia project, but never contributed anything definite in the way of information. The Oregon-Canadian company has remained secretive about their plans and has not disclosed officially where their projected development is located.

The Kootenay project is now revived by Mr. Amon who reveals plans for a big project which would reclaim thousands of acres on the Kootenay River near the international boundary and develop power in connection with the proposal to divert the course of the stream for some miles. The scheme would involve about $4,000,000. The proposal is to be taken up by the Dominion cabinet, it is said. The sponsors of this scheme are acting under the charter of the Kootenay Pulp & Paper Co.

At the same time a lively interest is being evidenced at Bonners Ferry, Idaho, in pulp mill development. This city is situated close to the boundary. Claims are made that Eastern capital is investigating the possibilities and that a pulp mill is being considered.

Sulphite Pollution Article Widely Distributed

More than 100 copies of the September issue of PACIFIC PULP & PAPER INDUSTRY were sent out recently to sanitary engineers in states all over the nation, to prominent men interested in public health, to educators, to prominent men in the pulp and paper industry, and others, directing their attention to the original research work which had been conducted in Washington to determine the effect of sulphite liquor on fish. The research was conducted by H. W. Nightingale, Washington State Sanitary Engineer, and V. Loosanoff, biological assistant. The article was a condensed review of the research work and was written by Mr. Nightingale. The copies were sent out by the Washington State Department of Health.

Henri Jacobs Studio, Tacoma

GEORGE W. FORRESTER

George Forrester Now In Charge At Cascade

George Forrester has come to the Pacific Coast to take charge as general manager of The Cascade Paper Co., at Tacoma, Wash. The Cascade mill manufactures book papers. The former presonnel remains practically unchanged except that A. N. Drips, who has been serving as secretary-manager, has turned over the general managership duties to Mr. Forrester to devote his attention to the office of secretary. Mr. Forrester has instituted weekly conferences at which all department heads are represented and the mill is undergoing a period of study for possible further efficiencies.

Mr. Forrester made several trips to the Pacific Coast prior to his affiliation with the Cascade company. He was formerly assistant to the operating manager of the International Paper Co., and is a man of long experience in paper manufacture.

Technical Association Committee To Meet

It looks very much like the Pacific Coast will organize some form of technical association. At the first Pacific Coast pulp and paper conference held at the University of Washington on October 26 there was a unanimous expression of opinion on the desirability of creating some form of technical association for the pulp and paper industry of the Coast. A motion was made authorizing Dr. H. K. Benson, chairman of the committee in charge of the conference, to invite the Pacific Coast mills to send a representative to a formal committee meeting.

Dr. Benson reports that an excellent response has been received from the mills and that a meeting will be held in Seattle at the New Washington Hotel on Saturday, January 12. The business of that meeting will be to discuss the feasibility of a technical association and to take formal steps toward organization if favored. Sentiment expressed so far favors a Coast branch of TAPPI.

This typical view of Neah Bay pulp wood operations shows both the dense timber and the close cutting practiced

Chips Direct From the Forest

IF you will get out your map and turn to the State of Washington and then follow westward toward the sea along the Straits of Juan de Fuca you will come to the most northwesterly tip of the entire United States. It may not show on your map, but that is where the little Indian town of Neah Bay is situated. It spreads along the curving beach where the huge rollers from the great wide Pacific itself break in fury at times. And the sea is at present Neah Bay's only connection with the outside world, for as yet no road pierces the primeval wilderness, although the way is now cleared with bonds voted and road connection is not far distant.

In the realm of pulp and paper, Neah Bay, and the Makah Indian Reservation on which it is situated, has come into a new prominence in recent years. This northwest corner of the United States lays claim to the heaviest rainfall in the nation—an annual average of 120 inches. The winds sweeping in over the Pacific are tempered and the result is a climate that is moist, cool and equitable and conducive to perhaps the most desirable pulp wood growing conditions to be found anywhere. It has been estimated that the Neah Bay country will average about 80 cords to the acre, running principally to Western Hemlock and Silver Fir with about 12 per cent of Sitka Spruce. The timber is, of course, virgin. In size it varies from 12 inches up to 6 and 8 feet for some of the older spruce giants in the more favored flats. The average tree is perhaps between two and three feet in diameter.

There are some spruce in the region which are more than 500 years old. One such giant observed tallied 479 annualar rings and was 6 feet 6 inches in diameter at the butt. It had been cut from a 10-foot stump. The pulp wood cutter working on this particular plot estimated that the tree would produce 25 cords of pulp wood. From the butt to the first limb measured 96 feet, and a 7-foot drag saw was necessary to cut through that point.

The density of the stand in the Neah Bay country, coupled with a somewhat rough terrain, has developed a method of cutting pulp wood which perhaps has no exact parallel anywhere. Pulp wood cutting has been carried on near Neah Bay for some time, forming a principal supply for the 270-ton news print mill of the Washington Pulp & Paper Corp. situated some 60 miles eastward on the Straits. In general the method has been to fall the trees and convert them into 4-foot peeled cordwood in the woods and transport the cordwood in scows to the pulp and paper mill.

A few months ago the National Paper Products Co. began operating the first 100-ton unit of what will ultimately be a 200-ton sulphate mill making kraft container board and kraft test liner. This mill has created a new demand for chips of generally lower grade than required at the news print mill, and as it draws in good part on the Neah Bay pulp wood cutting operations the result has been a change in general wood supply operations. The announcement was recently made that a chipping plant was to be installed at Neah Bay and construction on this unit, which will be the first actually to make chips in the woods, will soon begin. The chipping plant will have a daily capacity equivalent to 300 cords of wood.

In design the Neah Bay chipping plant will exemplify the latest. It will be powered with a Diesel-Electric unit of approximately 500 h.p. capacity. The individual units will have their own motors. There will be two 88-inch Carthage chippers with crushers and screens of ample capacity to handle properly the entire output at 100 per cent efficiency of operation.

Steam for the steam splitter will be furnished by a small boiler installed for the purpose.

The whole chipping plant will be confined to a minimum of ground space in order to conserve the allotted area for possible future expansion.

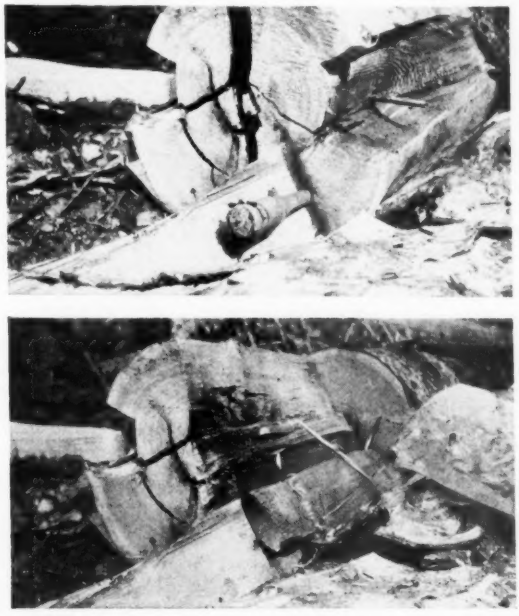
When the new chipping plant is completed the Neah Bay operation will continue to ship cord wood for grinding purposes as well as chips. In general its function will be to meet a three-fold demand, as follows: cordwood for the groundwood mill for news, high grade chips for news sulphite, and lower grade chips for kraft.

The Neah Bay plant will also effect a number of economies in wood costs and will constitute an important forward step toward closer wood utilization. The fast growing trees of the Neah Bay region have a certain amount of fluted timber wherein the bark lies in seams and necessitates a good deal of labor in cleaning up for first quality chips. Under the new plan where both kraft and news mills are to be supplied the wood will be sorted over, and the lower grade wood will be diverted to kraft chips where the chip standard is not quite so rigid. With the chipping plant in operation three principal economies will be effected: first, a higher volume production of wood per man, second, a closer utilization of wood, and third, reduction of excessive handling costs encountered in transporting cordwood (which averages about 60 pieces of wood to the cord).

Clean cutting is practiced at Neah Bay. In other words, the pulp wood cutters cut every tree of pulp wood size when they go over the plot and the closest kind of utilization is practiced. There is no slash burning after cutting, and in this moist country such a practice greatly facilitates natural reforestation. When the new chipping plant is completed the general practice will be to fall the trees in the season when the bark is "slipping" easily, skid these trees to a chain drag saw and buck them into lengths and then bring them out to the chipping plant where they will be split by steam splitters and then chipped.

The new method will mean the abandonment to some extent of the splitting guns which are in present use at Neah Bay. These guns have well served their purpose previously where the practice has been to fall the trees, buck into four-foot lengths, split and convert to peeled cordwood in the woods. The development of this gun and its use is interesting in the annals of pulp wood cutting.

A pulp wood cutter filling the splitting gun from his powder can. Note the details of the gun as shown here

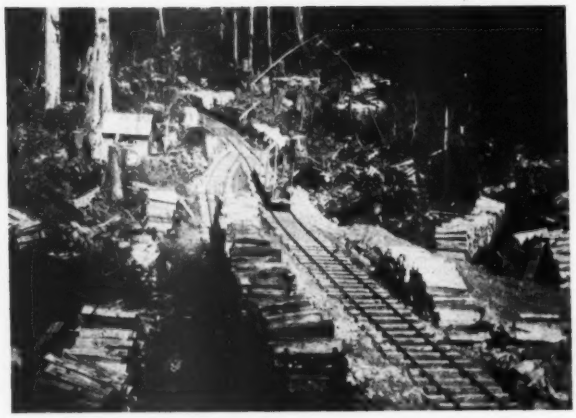


The pulp wood splitting gun in action. (Top) Gun in position for firing. (Bottom) The same piece after firing. This particular log was a "tough one" and more than the ordinary number of shots were required

Hemlock is a tough wood and the trees are large. Hand splitting with wedges and mauls was at first tried, but the men "couldn't make it" and the labor expended was excessive. Hence the development of the "splitting gun."

The gun is a lathe-turned shaft of special nickel chrome steel about 16 inches long and tapered to a driving point at one end. The butt end is about three inches in diameter and is hollowed out to receive a wooden plug, against which the mallet strikes when driving the plug into the blocks. This wooden driving plug has an iron collar to prevent the plug from splitting too easily and to prevent splinters from flying off and injuring the workman. The small end of the gun is bored out to form a powder chamber, this chamber extending back to a point that leaves a steel wall an inch thick at the rear end. The outer surface of the driving point is corrugated so that the gun will hold in the wood when driven in. At the rear of the powder chamber a fuse hole is provided. A hole is drilled and threaded to receive a short hexagonal head machine bolt. The bolt itself is center drilled with a hole about ¼-inch in diameter in the head of the bolt and less in the shank. Having the firing hole in the form of a bolt is a great convenience because the entire bolt can be removed in a moment with a wrench and the hole cleaned out in case of plugging.

In operation the gun is loaded from the muzzle with about one cent's worth of black powder and then driven into the center of the block to be split. It is only necessary to drive the gun in about three inches. As the



Wood everywhere! Illustrating the general method of getting the wood out at the Neah Bay operations

Gasoline driven drag saws keep many kinks out of the back and get the work done more efficiently.

muzzle of the gun is sharp the gun can be driven in with light blows. A short fuse is then set in the firing hole and touched off. The report sounds much like an ordinary shot gun, and when several cutters are at work in the woods it sounds much like a party is enjoying some good hunting.

The gun will split the four-foot block very nicely, but some of the larger pieces with crooked grain require several shots. With the 4-foot bolt broken open the pieces can then easily be split to desired pulp wood size with iron wedges.

To get the wood out of the forest the operators have been using a light, narrow guage tram. The steel is light and easily laid. As the stand of wood is dense it is not necessary to lay much steel at a time, and therefore but little capital is tied up in rails. A main line is run in along the more level reaches and short spurs are put in where needed. As the loads are light no great expenditure is necessary for roadbed, it being sufficient in most places to lay the ties right on the cleared ground, with occasionally some logs under the ties in the softer places. The motive power of the "Toonerville trolley", as the crew generally refer to it, is a standard gasoline truck motor with ordinary speeds and clutch, mounted on a special chassis to operate on rails. The cars are all steel with four steel uprights to hold the load in place. Each car has a capacity of 2¼ cords. The cars roll very easily as they are equipped with Timken Roller Bearings and are lubricated with an Alemite system.

In cutting the wood on the slopes and the rougher places care is used to pile where the wood may easily be "chuted" down to the rails. The abundant rainfall of the country provides natural lubrication for the sticks of cord wood, but when there is a dry period a dose of tallow is given.

When the wood is to be split by steam at the chipping dock the system used is to fall the tree when the bark is slipping, and then cut into 4-foot bolts with a chain saw. A gas motor-driven chain saw cuts the trees into 4-foot bolts, the bolts dropping directly into the chute and landing at the railroad pile. The chain saw is a great time saver. With a 15 h.p. motor to drive it the saw will cut through a 4-foot log is about one minute, or about 50 trees a day if the yarder can keep the saw supplied. The trees in this region will run from one to three cords per tree, with the average running better than two cords. A cable is hooked on to the rear end of the log and the same motor that runs the saw keeps pulling the log forward a 4-foot length each time a cut is made.

The central aim of the wood cutting operations at Neah Bay is to secure complete wood utilization with efficient and economical production. All refinements in practice have been toward that ideal. And further, the timber is not considered a one-time crop, but is regarded as a perpetual and perpetuating resource. The new growth is given a chance and promises well to provide another cutting in 30 to 40 years.

Awful Wet—But Look at the Trees

No wonder the trees grow an inch a year near Forks. The official rainfall tabulation for October shows that 15.35 inches of rain fell. 11.24 inches fell at Tatoosh Island, 8.32 inches at Clallam and only 3.27 inches at Port Angeles. The Port Angeles rainfall was nearly an inch above normal.

The above item from the Port Angeles (Wash.) Evening News sheds a little light on the climate of the Western Olympic peninsula, where men are men and the trees are "bigger than anything."

Forks is a small town a dozen miles or so from the sea on the Western slope of the Olympic mountains. Tatoosh is a government island at the extreme northwest tip of the United States, boasting principally a lighthouse and a weather observatory. Clallam Bay is situated 50 miles or so west of Port Angeles on the Straits of Juan de Fuca. Note the great difference in rainfall between the different points, all of which are within the diameter of a 100-mile circle.

The "Toonerville" brings down a load of wood

Longview Fibre Broadens Activities

Installs Paper Bag Factory and Will Construct Groundwood Mill

A NEW groundwood mill, to supply about 20 tons daily of groundwood to replace the same amount of waste paper now being used as part of the raw material for the fibre board manufactured by the Longview Fibre Co., Longview, Wash., will be built and in operation by March 1, it has been announced by R. S. Wertheimer, resident manager of the company.

The Longview Fibre Co. also during the last week of November placed six paper bag machines in operation, and during the first week of December added three more, making a battery of nine bag machines which are now using seven to eight tons daily of the kraft paper produced in the mill. The bag machines at present are operating on one shift daily, while the board machine and the paper machine are running 24 hours every day.

Now Under Construction

Fibreboard production is now close to 100 tons daily, and paper production is 30 to 35 tons daily.

Two three-pocket grinders for the groundwood mill have been ordered from the Sandy Hill Iron & Brass Works, of Hudson Falls, N. Y. The grinders will be powered with a single 1,650 h.p. electric motor, which has been ordered from the General Electric Co. Grinders and motor are scheduled to arrive for installation about January 15, 1929, and operation of the new groundwood mill is expected to start about March 1, Mr. Wertheimer said.

The building to house the grinders is now under construction, excavation having started late in November. The groundwood mill will immediately join the main mill structure, just south of the digester end. Its construction, and the installation of the new machinery will be in charge of W. E. Dodge, chief engineer of the Longview Fibre Co.

Payroll Increased

Power to operate the new motor will be purchased from the Long-Bell Lumber Co., and a power transmission line is being built from the lumber company's power plant, which is a mile distant from the paper mill. Douglas fir waste from the same lumber mill is chipped and brought to the fibre plant as the principal raw material for the manufacture of the board.

The addition of the groundwood mill will increase the present payroll of 320 persons of the Longview Fibre Co. by about 15 men, will mean an improved product, and will effect operating economies, company officials state.

The nine paper bag machines which are used machines, were brought to Longview from Waukeegan, Ill. Matt Micke, formerly with the American Lakes Paper Co. at Waukeegan, is the new superintendent of the bag department. The department employs a dozen girls and women, and seven men.

The nine machines range in size of bags produced from a one-half pound bag to a 30-pound bag, each machine being adjustable to three different sizes of bags. The six largest size producers were the first to be placed in operation. Mr. Micke says that when his new crew gains experience in the operation of the machines, they should produce from 100,000 to 150,000 bags in an eight-hour shift of the smaller sizes, and from 40,000 to 50,000 daily of the larger sizes.

The bag machines are located on a floor below the main machine room, in a room which has ample size for future expansion of this department. "Longfibre Kraft" is the trade name being used for the new bags.

In using up seven to eight tons of paper daily for the bags, approximately 1,000 pounds of paste are required daily. This paste is being manufactured at the plant.

The Longview Fibre Co. first began production in October, 1927.

Grays Harbor Port Business Increases

Inbound cargoes handled at Grays Harbor during November increased considerably with the large shipments of lime for the Grays Harbor Pulp & Paper Co. Regular shipments of limestone from Blubber Bay, B. C., are being received.

While the Harbor lumber shipments for the fifth consecutive year topped the billion-foot mark, with the 10 months' total figured at 1,031,895,378 feet, the pulp shipping began to grow into important figures in November with the pulp mill of the Grays Harbor Pulp & Paper Co. approaching capacity.

Several Japenese freighters took good-sized pulp cargoes from the Harbor to the Orient during the month. The Yayoi Maru loaded 500 tons of pulp in addition to her usual four million feet of lumber for Miike and other Japanese points. The Japanese freighter Johgu Maru also lifted a good-sized quantity of pulp for the Orient, as did the Yoshu Maru. The Malta Maru took 630 tons of pulp to Japan besides a four-million-foot lumber cargo.

The largest individual pulp shipment yet made was that aboard the Norton & Lily steamer A. L. Kent. It was a 1,000-ton lot for Portland, Maine.

Rapid Progress on New Paper Mill

Construction crews are making rapid progress with the concrete foundation and retaining walls of the new paper mill unit of Grays Harbor Pulp & Paper Co. at Hoquiam, Wash. The unit now under construction will house a 50-ton paper machine which will produce the Hammermill line of bond papers. The pulp mill unit, already in operation, has a daily capacity of 150 tons of bleached sulphite. The piling driving is about completed on the paper mill job by the Owens Brothers, Port Angeles contractors, for foundation supports. Hauling of piling by a truck fleet engaged for several weeks in bringing the long poles to Hoquiam from Lake Quinault, finished late in November when the last piling was deposited on the mill site. The piling were taken from a heavy stand of timber on the Haas place near Lake Quinault by woods crews under direction of Swan Dahlberg, contractor on the pulp company's pipe line and on clearing of the paper plant site.

Water Power Takes a Back Seat

Rapid Strides Made in Steam Engineering in Past Decade May Mark Dawn of a New Era in Coast Pulp and Paper Manufacture

POWER. Any discussion of pulp and paper manufacturing brings in the subject of power as one of first consideration. On the Pacific Coast, so bountifully supplied with water power, we have grown accustomed, in any discussion of power, to at once presuppose hydro-electric development. Particularly is this true when considering power in relation to a pulp and paper development.

With specific application to the pulp and paper industry of the Pacific Coast the significance of the trend away from hydro and toward steam power is this:

Forced to rely solely upon hydro development for economical power it is apparent that the pulp and paper industry now developing so rapidly on the Coast would be stifled after development of the major power sites. With steam competing on an equal or even better basis new pulp or paper mills may be projected independently of a hydro development. This independence will permit also greater range in choice of sites.

Pacific Coast states have not been backward in developing their water power resources. These developments of natural resources have proceeded very much on the theory that hydro-electric developments are the most economical. With the accumulation of experience, however, has come the realization that the real test of a hydro-electric development is cost and continuity. Costs, of course, may show a wide variance between different projects, due to a number of factors such as location, topography and foundation footings, while the continuity is at the mercy of the seasons.

Power must be used when it is made, and unless the supply is continuous and dependable its value suffers immensely. The extremely dry year of 1924 gave the power executives of California a severe jolt and made them realize that hydro plants must be backed up with steam. California saw the greatest development of the hydro-electric industry in the last decade. The jolt of 1924, however, seemed to inaugurate a reversal of policy and now steam power developments are rapidly outstripping new hydro developments. California is cited only as a typical case. The fact is that we apparently stand at the threshold of a new era in power development, with steam again coming into its own because of its old virtue of dependability and its newer virtue—credited to engineering refinements—of lower costs.

A Home Example

Turning now for a specific example closer to home with respect to pulp and paper manufacturing we witness the somewhat unusual spectacle of a mammoth steam-electric development in the state of Washington, the state which ranks first in potential water power resources.

The example is the new Shuffleton plant of the Puget Sound Power & Light Co. This company, which serves an extensive area in Western Washington, has developed several power sites. It has also built a number of steam plants to bolster up the low spots on the power curve, but the Shufffffleton plant, which will develop 35,000 K. W. in the first unit, is the first step toward steam construction for primary major supply.

An army of workmen are now pushing construction on the Shuffleton plant at the lower end of Lake Washington near Renton, just beyond the city limits of Seattle. Incidentally it will be recalled that the industrial possibilities of Renton were brought out in an issue of PACIFIC PULP & PAPER INDUSTRY about one and one-half years ago. With the new Shuffleton plant only started a few weeks ago, the announcement is already made that a second unit of similar size will be started upon the completion of the first unit next September and that eventually more units will be added to make a plant worth some thirty millions of dollars.

Why A Steam Plant?

Naturally a steam power development program of this magnitude in a state so blessed with water power has raised the question "Why a Steam Plant?" To answer that question, W. D. Shannon, engineer in charge of construction at the Shuffleton plant, recently delivered a most interesting address in Seattle, pointing out a new era in power development thought. The following paragraphs are condensed from Mr. Shannon's address:

"The manufacture of electricity by water power may be traced back to the hydraulic mining days in California. It was but a single step to put the nozzles to work against a series of buckets on a wheel, and with the wheel coupled to a crude generator the engineering world saw the development of the hydro-electric industry.

"The succeeding years brought a mighty development in efficiency, but these efficiencies were reached nearly 20 years ago and since that time there have been very few improvements in hydro-electric equipment.

Steam Advances

"When hydro-electric efficiency had reached a high state steam was still in the reciprocating engine stage. There followed the development of the steam turbine and with it came other efficiencies until today the water turbine must look to its laurels. Today our modern steam turbines are turning out almost 500 K. W. H. from a barrel of oil and in some instance nearly a K. W. H. from a single pound of coal. Ten years ago half the present efficiencies were considered average fuel economies."

Mr. Shannon then quoted a number of major steam installations which had been made in California in the past few years, to show the rapid trend in that state away from hydro and toward steam electric development. As an example he cited the Edison Co. which has at present 588,000 H.P. of hydro plants, but which, with the completion in 1929 of a steam unit now under

construction, will have installed 550,000 H.P. steam with practically no increase in hydro.

Mr. Shannon pointed out that while Washington had more rainfall it had lower heads of water to develop. He said, "As a matter of fact, the potential water power in both California and Washington is about equal, but California found out first that it may not be economical. We are not, however, following that state's leadership for the example alone, but because our engineers in the Northwest are finding out at first hand that the proper balance between steam and hydro has not yet been reached.

"Construction of this steam station does not neiessarily mean the discontinuance of new hydro electric plants, but it does mean that each type must stand on its own feet."

Steam Is Simple

Citing some of the difficulties of hydro development he pointed out the years required for proper stream flow studies, difficulties in acquiring lands, and the fact that when finally and properly surveyed for potential development the power demand may not be suited to the plant proposed. Time was stressed as a most important factor, for, while a gigantic steam plant can be designed and put into operation in a year a similar hydro plant may take several years. In the meantime the power demand is pressing hard for production.

"Consider the simple problems involved in a steam plant. Any location with rail or water transportation, near the power load center, and close to a water supply for condenser purposes will be easy to find.

"It is apparent that there are advantages for both types of power plants, but the impressive point is that the engineers on the Pacific Coast at least are no longer taking it for granted that new power must be provided by the development of our streams.

"While capital costs of our hydro plants have been increasing both the capital costs and the cost of operation of steam plants have been decreasing.

"Greatly increased efficiency in steam-electric production has made hydro-electric engineers who have been so enthusiastic over the development and use of our water powers now see the handwriting on the wall. They are rapidly returning to the steam turbine for their power expansion program.

Vast Coal Resources

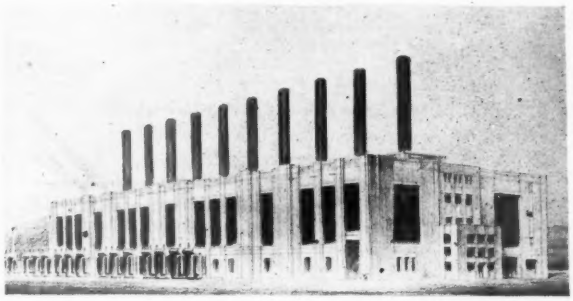
"Just the saving of a few more heat units, a few more refinements in the turbine—and both of these are already in sight—and the cost of steam-generated power with the present price of fuel, will be less than that generated by hydro."

Because the water powers of the Northwest have shrunk in value, Mr. Shannon pointed out, we must not jump at the conclusion that the total resources of the state have diminished, for, while hydro may be at a temporary disadvantage, the great coal fields of the Northwest may be coming into their own.

Coal resources of the Pacific Northwest are practically inexhaustible. The state of Washington, according to U. S. Geological Survey estimates of 1917, has 63,854,900,000 tons of coal within 3,000 feet of the surface. Of this amount 11,412,000,000 tons are bituminous and 52,442,900,000 tons are sub-bituminous. When we consider that the total coal production in Washington to the end of 1927 was 110,000,000 tons, we can see that the total resources have scarcely been scratched. There are about 60 mines operating in the state, producing annually about 2,750,000 tons at the present time.

In the state of Washington coal is found in Whatcom, Skagit, Snohomish, King, Pierce, Thurston, Lewis, Cowlitz, and Kititas counties, ranging in rank from subbituminous to bituminous, coking and non-coking coal. Anthracite is reported in Whatcom and Lewis counties, but there are no commercial developments at present.

Coal mining development is unusually favored in the



The new Shuffleton steam plant now under construction near Seattle.

state of Washington as all of the coal fields and mines, with the exception of those in Kititas County, are tributary to tide water transportation. There are no storage or transportation problems in the state due to the mild seasons and ability to produce and move all through the year.

Of the other two Pacific Coast states Oregon and California both have but comparatively little coal but there are extensive deposits in Utah and some of the other mountain states and these supplies are available for the Pacific Coast.

B. C. Has Coal

British Columbia also has very extensive deposits of coal in the Coast district, particularly on Vancouver Island. These coals form the great bulk of fuel used in the Coast territory of British Columbia. The Vancouver Island coal is bituminous while the coal on the western mainland is largely sub-bitumious and not a great competitor of the Island fuel. In the Crows Nest Pass district there is also considerable mining and this coal, which is a high grade coking variety, also enters into the Coast trade to a limited extent at the present time.

Hogged Fuel

The great sawmilling industry of the Pacific Coast provides a volume of hogged fuel that will be available for many years to come. A recent engineering survey of hogged fuel available by barge to a power plant near Seattle located either on salt water or on Lake Washington showed a primary supply from the nearer mills of 218,000 units annually, basing this figure for conservativeness on the lowest cut in a period of years. A unit of hogged fuel contains 200 cu. ft., and it is estimated that one-half of one unit is produced for every 1,000 feet of lumber cut.

The secondary supply is about four times as great. It contemplates drawing from sawmills which are more remote but still within the Puget Sound basin. This secondary supply is estimated at about 980,000 units annually, making a total primary and secondary supply of one and one-fifth million units.

With these great fuel resources, coal and hogged fuel, and with the new era of cheap steam power, it is apparent that the power situation in the Pacific Coast is not likely to meet demands that it can not answer.

The Relation of the Work of the U.S. Forest Products Laboratory to the Pulp and Paper Industry

By C. C. HERITAGE*

THE United States Forest Products Laboratory is the technical organization that, as an integral part of the Forest Service of the Department of Agriculture, deals essentially with those research and development problems encountered in improving and increasing the utility of forest products. The interests not only of the people in general and of the producers and consumers in particular are served but also more specifically the interests of the Forest Service itself in its management of the large federal timber holdings.

C. C. HERITAGE

The work of the Forest Products Laboratory relates to the interests of the pulp and paper industry primarily through its pulp and paper section. The various fields of technical work in which this section is active center around four interrelated materials; namely, paper or paper board, stuff, pulp and wood. Any study of any of these materials must relate back to the use requirements of the commercial product as ultimately consumed. The requirements of the particular use to which the consumed product is put constitute the best definite tangible foundation upon which research studies may be built. Progress comes about through producing a certain finished sheet satisfying definite use requirements, then producing a certain stuff suitable for this sheet, then certain pulps suitable for this stuff, and finally in the future, growing certain woods suitable for these pulps.

Precise Methods

Each of these four materials are capable of evaluation and identifiation through their physical and chemical properties. The methods for the precise determination of these properties constitute the tools by means of which knowledge is had as to whether or not the various materials are to finally yield a product for consumption which is satisfactory in use. The importance of precise methods of evaluation properties cannot be over-emphasized.

Each adjacent pair of these four materials is connected by a group of operating or processing variables. By the manipulation of these, one material is converted into the next in order. The use requirements of the consumed product demand certain properties in that product. The converting variables link that product with the mill-made sheet of paper or paper board with its particular properties. The paper machine variables link the sheet with the stuff. The fiber processing variables connect the stuff with the crude pulp and the pulping variables tie the pulp up with the wood which in turn has been produced as the result of a whole host of simultaneously acting silvicultural and land variables.

Thus the various fields of work rest on the use requirements of the consumed product, the various materials are evaluated relative to their ultimate use by their physical and chemical properties and these properties are modified to suit the ultimate end by the manipulation of the five groups of variables.

An important generalization becomes obvious at this point. The farther back toward wood we go, the greater becomes the variety of materials which may be processed to secure the one desired end product as consumed. The choice is limited as regards stuff because the paper machine variables only may be manipulated, the choice is much wider as regards pulp because the fiber processing variables are now included, and relative to various woods the manipulation of the whole range of variables through pulping, fiber processing and sheet manufacture is open to produce a commercially marketable end product. Thus satisfactory white bond or writing paper has been made at the laboratory from non-resinous conifers, resinous conifers and deciduous species by proper choice of operating variables. The end product is the important thing, the particular species available is a much less important consideration.

Three Objections

Having clearly in mind these fields of technical work, the basic objectives of the section of pulp and paper may be stated. These are broadly of two kinds, applied and fundamental. The applied objectives are as follows:

First, increased and improved utilization of particular species, which may now be either in actual use or merely available.

Second, more nearly complete utilization of pulpwood at the mill.

Third, utilization of wastes.

These objectives call for applied research and are capable of attainment only through mill scale demonstration. Such action is possible only to the extent that fundamental research has supplied the required knowledge. It is necessary, therefore, to prosecute fundamental studies simultaneously with applied work and the major objectives of the fundamental work are as follows:

First, improved methods for evaluating papers and boards relative to their use requirements, pulps and stuffs relative to commercial papers and boards, pulp woods relative to pulp, and land and forest relative to pulpwood.

Second, increased knowledge of the effects of the paper machine and the fiber processing variables, of the pulping variables, and of the land and forest variables.

Constantly pushing towards these objectives, brief mention only can be made at this time of the results in

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certain lines of work which may be of greatest interest to the pulp and paper industry of the Pacific Northwest.

In the field of fundamental studies in attempting to secure improved methods for evaluation of properties several pieces of work may be mentioned.

In producing newsprint at the laboratory from wood of various species and from various furnishes, it became necessary to study rather fully the physical property of opacity which is one of the most important considered from the standpoint of use requirements. The "contrast-ratio" method as described by Sammet was used employing the Ives tint photometer. "Contrast-ratio" is the ratio of the brightness of two samples of the same sheet as nearly identical as possible, one of which is placed over an absorbing background, while the other is over a reflecting background. It is a direct measure of the opacity of the material under conditions similar to those of actual use. If the sample is perfectly opaque the ratio is unity. The "contrast-ratios" of newsprint samples from 40 Canadian and American mills varied from .88 to .95 and averaged .91. The effect of varying thickness was found to be capable of mathematical expression, but the contrast ratio is not directly proportional to thickness as sometimes considered. By means of this mathematical relationship it is possible with other factors such as color and finish nearly constant, to study opacity as a property of the material of which a sheet is made rather than of the sheet itself. The character of the paper surface and its color affect the results.

Microstructure Studies

A particularly interesting investigation is being made of the microstructure of a wood fiber. By treatment with phosphoric acid carefully controlled, it is possible to remove portions of the fiber gradually and thereby reveal microscopically the structure of the fiber. The fibrils of the outer layer appear to be oriented at right angles to the long axis of the fiber, while the fibrils of the inner layers are oriented so as to produce a spirally or helically wound structure. These layers are composed of fibrils and the fibrils are further reduceable to fusiform bodies somewhat cell-like which join to produce the fibril by overlapping as do the scales of a fish. This method of disintegration or degradation of the fiber has been applied under standard conditions as a means of estimating the severity of pulping or of fiber processing such as beating.

Much emphasis has been placed for a number of years at the laboratory on precise methods for the chemical analysis of pulps and pulp woods. A mimeograph is now available giving the procedures in detail for the determination of about twenty chemical properties.

Studies of Variables

Fundamental work in the broad field of increasing our knowledge of the effects of the operating variables all the way from the forest to the finished sheet of paper or board, which may be of most interest is that concerned with the bleaching variables and the sulphite pulping variables.

The studies of the effects of the variables of the bleaching reaction upon reaction rate, color and chemical properties of the bleached pulp have been made using an average commercial "semi-easy bleaching" "quick cook" sulphite pulp. The raw material proportions as described by consistence (pulp-water), bleach ratio (pulp-chemical) and concentration (chemical-water) have been varied as follows:

Consistence up to 7 per cent.
Bleach Ratio up to 30 per cent.
Concentration — as fixed by consistence and bleach ratio.

Much remains to be done in the field of research in the pulp and paper industry. Briefly stated, the work of the Pulp and Paper Section of the U. S. Forest Products Laboratory, of which Mr. Heritage is in charge, is "to find out what needs to be known, and then proceeding to know it."

In this article Mr. Heritage has shown how the Laboratory has classified its general problem by centering its technical work about four interrelated materials; namely, paper or paper board, stuff, pulp and wood.

All research has in view the product ultimately consumed, and the studies therefore consist in learning all about the variables that may be encountered in the four elemental materials. Each of the four materials are capable of evaluation and identification.

The farther back toward wood we go, the greater becomes the variety of materials which may be processed to secure the one desired end product as consumed. The Laboratory studies have therefore included an exhaustive research into the very character of the individual fiber itself.

Mr. Heritage questions the economy of producing pulps of high cellulose when they are to be mixed immediately with groundwood for production of large-tonnage, lower-grade papers. A semi-sulphite pulp, employing mechanical disintegration in one stage, and which gives a much higher yield, can be substituted for this higher grade pulp.

Each project goes through three stages before successful conclusion, namely, fundamental laboratory work, applied laboratory or semi-commercial scale work, and full mill scale demonstration. The Universities can contribute much to the first, the Forest Products Laboratory serves in the second stage, and the mills must furnish the opportunity for the last stage.

Alkaline hypochlorite has been used exclusively. Temperature has been taken up to 46° C. (115° F.). Time has been taken to exhaustion with many determinations of the various effects made at regular intervals throughout the course of the reaction. Agitation has likewise been varied over a considerable range of intensity.

The broad conclusions are as follows:

The reaction rate as determined by bleaching agent consumed bears a straight line relation to the logarithm of the time elapsed until the point of 90 per cent consumption of the original quantity of bleaching agent used is reached at which time the reaction rate decreases materially. Likewise for equal percentage exhaustion of the bleaching agent temperature bears a straight line relation to the logarithm of the time elapsed. The reaction rate increases with increasing consistence.

Final color seems to be largely independent of temperature if the bleaching agent is exhausted. The greatest improvement in color occurs during the consumption of the last 10 per cent of the bleaching agent. The rate of color change increases with temperature increase. The color change is proportional to the quantity of bleaching agent consumed up to a certain point termed the bleachability point beyond which the color change decreases materially. The so-called "consistence effect" which is the effect of producing a higher white for a given bleach consumption as the consistence is increased, all other conditions being constant, begins to appear at about 8 per cent bleach consumption and reaches a maximum at about 17 per cent or the bleachability point of the particular pulp being used.

Increasing the bleach ratio increases the final whiteness of the pulp, and degrades it chemically as measured by its solubility in 1 per cent sodium hydroxide and its alpha cellulose content.

(Turn to page 60)

Mill Research

By VANCE EDWARDES*

THE enormous improvement in quality and reduction in manufacturing costs which can be made available through mill scale research are too often overlooked, possibly due to the press of operating problems but often because of a lack of appreciation of

VANCE EDWARDES

the advantages to be gained. True, all mill operation is the result of research, for what is research but the orderly observance of cause and effect.

It is, of course, impossible to conduct mill scale studies along the same lines as can be used to advantage in the laboratory, but the same fundamental principles apply in each case. Variables beyond the control of the operator complicate the problem whereas in laboratory research all variables can be controlled at will. However, by keeping a continuous record of operating conditions, over a period of time, and by carefully studying results, conclusions can be drawn which will more than justify the expense. Time is necessary in all mill scale research because of the variables which will affect the results and because of the great possibility of error in basing conclusions on a few observations. Individual results may vary appreciably from indicating the true conditions but the average of a sufficient number of individual observations will greatly reduce the possibility of error.

For obvious reasons the operating man cannot and should not be expected to carry on mill research. His time and energy are fully occupied with operating problems. However, his advice and active cooperation must be obtained if the results are to be of any real value to the organization. It is believed that herein lies one of the greatest services the technically trained man can render the industry. One preferably, though not necessarily, familiar with mill operating problems should be employed for this very important work. A testing laboratory properly equipped both as to men and apparatus is a practical necessity. Only through laboratory tests can a reliable measure be had of many of the effects caused by changes in mill operation.

Improvements which can be made through mill scale research apply to every step of the operation, from the raw material to the finished product. More convincing than any general statement will be the listed results of what actually has been accomplished in a particular sulphite mill.

WOOD SUPPLY

Effect of Age of Wood on Digester Yield

While it is almost impossible, with the means now at hand, to successfully correlate wood supply and pulp quality, it is a well known fact that poor wood results in poor pulp though there appears to be no way of expressing the relationship numerically. A study extending over a period of three years showed beyond a doubt the effect of the age of the wood on the digester yield. A gradual decrease in yield was found to begin in the late summer and continue until the following early spring, when the new wood supply was received. While the figures for the individual years varied, a conservative estimate of the loss in yield placed it at 4 per cent.

Effect of Age of Wood on Pulp Strength

In a series of cooks using hemlock of various qualities and with the pulp bleaching at the same point, it was shown that the strength of the finished pulp varied with the moisture content of the chips though the relationship between cleanliness and color was not so regular.

Moisture Per Cent	Strength Per Cent
31	101.6
36	102.3
44	117.0
47	139.3

As near as could be determined from the yard foreman's record, the relative soundness of the wood varied with the moisture content, that is, the older wood was the drier.

WOOD ROOM OPERATION

Effect of Chip Length on Digester Yield

The result obtained by increasing the chip length on both hemlock and spruce from ⅜ inch to 1 inch was studied as to the effect on sawdust loss and digester yield. The runs were over a period of a month each and showed the following situation:

Wood	Decrease in Sawdust Per Cent	Increase in Digester Yield Per Cent
Hemlock	26.8	0.80
Spruce	25.0	3.85

The approximate saving, due to lower sawdust loss, amounted to 23 cents a ton.

Effects on Cleanliness of Pulp

A marked improvement in the cleanliness of the pulp

*Northwestern Pulp & Paper Co., Astoria, Ore. In the absence of Mr. Edwardes this paper was read by Mr. W. E. Breitenbach of the Rainier Pulp & Paper Co., Shelton, Wash., at the first Pacific Coast Pulp and Paper Conference held at the University of Washington, Seattle, on October 26, 1928.

followed shutting down the knot borer, due to the fact that the auger broke the knot into small particles which clung to the surface of the wood and were not completely removed in the chip screening operation.

A temporary shut-down of the soaking pond ahead of the drum barkers showed an appreciable increase in the dirt content of the pulp made during that time.

ACID PLANT

Burner Gas Concentration as Effecting Sulphur Consumption

In studying the relationship existing between burner gas concentration and sulphur consumption, it was found that the sulphur consumption varied inversely as the gas concentration. Practically a straight line could be plotted from the mill figures over a period of nine months. During that time the digester operation and gas recovery system remained practically constant.

DIGESTER ROOM

Operation and Control

Over a period of several months it was found possible to establish the relationship existing between the degree of pulping as measured in the laboratory and yield, cost and bleachability of the pulp. This was done in order to determine the most economical conditions under which the mill should operate. Standard cooking conditions were then adopted which resulted in the reduction of the cost of pulp of $1.85 a ton and added more than a ton a day in increased production.

Degree of Pulping

Laboratory determinations of the degree of pulping and the actual bleach requirements of the pulp were correlated over a period of several months making it possible to prepare and select pulps suitable for various purposes without the possibility of error.

Effect of Wages on Production

The effect of a reduction in wage on digester yield and production was very clearly shown in the yield and production curves. The yield per digester was reduced 5 per cent while the production fell off 7 per cent, both returning to normal some months later when a wage increase went into effect.

Control of Pulp Quality

The adoption of arbitrary standards of pulp quality as determined by laboratory tests in connection with digester control brought the pulp rating from an average of 70 per cent to 95 per cent in less than a year. During the same period the digester steam consumption was reduced about 40 per cent which not only reduced the steam cost per ton but increased the efficiency of the boiler plant.

Effect of Acid Concentration on Cooking Conditions and Pulp Quality

Keeping the bleach requirements the same but increasing the acid concentration from a total of 5.35 per cent to 6.08 per cent affected cooking conditions and strength of the resulting pulp as follows, based on the assumption that the wood quality remained constant during the series:

(1) Shortened the cooking time 10 per cent.
(2) Lowered the maximum temperature 2.5 degrees Centigrade.
(3) Increaesd the strength at one-half hour beating from 99.2 per cent to 102.5 per cent.
(4) Increased the strength at one hour beating from 100.0 per cent to 108.2 per cent.
(5) Had no effect on maximum strength.

One outstanding fact which applies to all the studies mentioned is that the various improvements and savings made were accomplished without the expenditure of large sums for equipment changes. Invariably lower costs accompanied improved quality. In many cases the information obtained was not the result of a planned investigation but the correlation of regular mill operation and the resulting quality and costs.

These examples have been taken from a number available and are illustrative of what can be accomplished by the intelligent use of the mill as a laboratory coupled with close cooperation between the operating departments and the laboratory. Savings and improvements every bit as important can be made in the other branches of the industry such as the groundwood mill, the soda and sulphate mills, and in the beater and machine rooms. In almost every mill in the country opportunities are ready and waiting for the right combination of men to turn them into valued assets.

Paper Exhibits in Oregon Industrial Museum

The St. Helens Pulp & Paper Co. has donated to the Museum of Oregon an exhibit on paper making, consisting of samples of chemicals employed in paper manufacture and the various woods used. Among the samples are nitre cake, rosin size, lime, and salt cake. The blocks of wood are of hemlock, white fir and Douglas fir. Samples of the company's products include rolls of kraft wrapping paper, gray wrapping paper, paper tape, tire wrap and gummed paper tape.

The exhibit, at present occupying space at the temporary headquarters in the Multnomah Hotel, is to be displayed in a glass case, which is to be removed later to the museum building which the association proposes to erect. Samples of pulp and the various papers made at the Oregon Pulp & Paper Co. have also been received and will be displayed in connection with the pulp and paper exhibit. An effort is being made to secure similar exhibits from the other pulp and paper mills in the state.

It is proposed to make miniature cases displaying small quantities of the wood, chemicals and papers. These cases will be utilized by teachers in local schools for the purpose of teaching children the various processes of paper making.

Sponsors of the museum plan building a miniature pulp and paper mill which will show the steps involved in the manufacture of the two commodities. Manikins working in the different departments will aid those interested in getting a working knowledge of the various processes.

The museum, say its promoters, will give tourists a complete picture of this industry. It was admitted that it might be sometime before construction of a building to house commercial exhibits would be started, although it was stated that an offer had been received to erect such building as soon as a sufficient number of exhibits had been received.

Development of the resources of Oregon was given as the reason for launching the commercial museum, plans for which have been under way for several months.

Fir-Tex Plans Indefinite

A. E. Millington, vice-president of the Fir-Tex Insulating Board Co., stated that his company had nothing for publication at this time, when asked early this month regarding the proposed plant at St. Helens, Ore.

"While we expect to start construction shortly after the first of the year, I am not in a position to forecast the probable date," he declared. "You may say, however, that we are making satisfactory progress."

J. B. Wilt to Build Sitka Spruce Mill

Work is now progressing on the first sulphite mill to be built on the Oregon Coast. J. B. Wilt, who recently resigned as Pacific Coast manager of the Stebbins Engineering Co., is now at Empire, Ore., and is in charge of designing, supervising and building the new 75-ton mill of the Sitka Spruce Pulp & Paper Co.

Mr. Wilt is one of the best known sulphite men on

J. B. WILT

the Pacific Coast. He has had about 25 years of experience as an operating man in different mills of the country. He is being assisted on the Sitka Spruce mill by E. T. Bellew of Appleton, Wis. Mr. Bellew was associated with the Kimberly-Clark mills in Wisconsin for several years, part of the time as engineer and part of the time in the operating end of the sulphite mill. He has been on the Pacific Coast for about four years, and recently was associated with L. A. DeGuere in the construction of the new pulp mill of the Shaffer Box Co. at Tacoma, Wash.

Virtually all the piling for the pulp mill has been driven and the company expects to begin pouring concrete before the close of the year. The mill will be principally frame construction. The chief sponsor of the new mill is C. McC. Johnson. Mr. Johnson's lumber company at Reedsport, Ore., is now sawing construction timber for the new mill. At the time the original announcement was made a 50-ton mill was proposed, but plans were recently changed to make a 75-ton plant.

A road has been built from the highway to the mill site. The Mountain States Power Co. is installing a new power line to serve the mill. Water is to be supplied from the Joe Nay Slough about three miles distant. It is understood that a dam will be built across the slough, which at present contains salt water, after which the slough will be drained and a fresh water basin formed by streams feeding the present slough.

The Sitka Spruce Pulp & Paper Co. was organized three months ago, with a capital of $1,000,000, incorporation papers being filed in Nevada. While the company holds large stands of Sitka spruce, it is generally assumed that considerable sawmill waste will be utilized.

The Coos Bay district, where two proposed pulp mills are to be built, is in the heart of what is probably the heaviest stand of spruce and hemlock in Oregon. While development in this region has been slow, it is expected that the proposed improvement of the Umpqua River project, recently recommended by government engineers, will give an added impetus to promotion of the district's activities. A recommendation was submitted to congress early this month, calling for an appropriation of $380,000 for work on the north jetty of the river in question. The work on the jetty has not been sufficient to benefit navigation by increased depth across the ocean bar.

Seattle Mill Revising Plans

No action toward construction of the proposed mill of the Seattle Pulp & Paper Mills, first announced about one year ago, has been undertaken to date, but it is learned that a more or less major revision of the original plans is being made and that the backers are satisfied that progress is being definitely made toward eventual construction.

First official announcement was made in June, 1928, although some preliminary reports preceded that date. The original plans proposed a 50-ton bleached sulphite pulp mill with a 30-ton paper mill in connection for the manufacture of "specialties", the exact nature of the proposed product not being stated, although generally supposed to be glassine. The mill was to be built on the Duwamish river just outside the City of Seattle.

As originally announced the financing program was to be conducted by the Tom G. Taylor Co., but it now develops that the Taylor company no longer is identified with the Seattle Pulp & Paper Mills and that the mill company is quietly working on a revised financial program, the details of which have not been disclosed. It is also said that some revision in the original production plan has been made and that the ultimate development may reveal a connection with some Eastern paper company.

The company has moved from its former office at 686 Dexter Horton Building, Seattle, and now occupies another office in the same building.

Please Pass the Salt

Jim Phillip, of the wharf crew of the Powell River River Co., Ltd., claims that he can handle a rod and line as skillfully as he can a roll of newsprint. Fishing off Powell River wharf with a fly line he hooked a fifteen-pound salmon. He was hauling in his prize when a big cod closed in on the salmon and gripped the smaller fish with its teeth. Phillip continued to pull and landed both, with the aid of a gaff. Fortunately, Ed. Smith, another Powell River employe, witnessed the deed and was able to confirm the story.

Hammerslag Opens Engineer Offices

Jay Hammerslag, for years associated with his brother Julian in the Enterprise Paper Box Co., San Francisco, has opened offices in the Russ Building in San Francisco as an industrial engineer. The Enterprise company recently merged with several other San Francisco Bay plants in the Consolidated Paper Box Co. and Jay Hammerslag severed his connection. Julian Hammerslag is treasurer of the Consolidated company.

Newsprint Very Much Unsettled

Until the newsprint situation in Eastern Canada is restored to some semblance of stability British Columbia paper mills will continue to mark time with respect to new contracts, it is learned.

According to one authority "the whole thing is absolutely dependent on the east. Until some definite action is taken there towards stabilizing prices the Coast mills will not be justified in going ahead with contracts now pending. Most of the orders now held do not expire until the end of the year. By then we are confident that something will be done."

Earlier in the year British Columbia paper men did not feel disturbed about the eastern situation. They had their contracts, their mills were operating and they were getting their price. But now these contracts are nearing the time for renewal and the price levels adopted in the east—the region of greatest production—naturally becomes a matter for concern.

While both Premier Taschereau of Quebec and Premier Ferguson of Ontario have succeeded in bringing the leading newsprint producers together in a series of conferences at Montreal, most of the proceedings have been secret. Within the last few days, however, a hopeful sign was given by the agreement of A. R. Graustein, president of International, to join in the parleys.

It was Graustein's contract with Hearst, reported to be at $50 a ton, that brought affairs close to a crisis in the eastern newsprint situation. A concerted plan of action, coupled with limitation of output and adherence to a fair price schedule, is the aim of those behind the conference; but the problems are largely similar to those that have confronted the Pacific Northwest lumber industry from time to time when the plans of a majority of the operators to regulate output for the benefit of the industry at large have been frustrated by the "outlaw" activities of a few independents. It is reported that the conference has tentatively agreed on 80 per cent capacity production and a price level of about $55 a ton, but these figures are not definitely settled.

Fears of eastern producers that British Columbia may upset their plans, whatever they may be, are voiced in Toronto and Montreal financial papers, who view with alarm the possibility of enormous expansion of the newsprint industry on the Pacific Coast.

International To Build Another Kraft Mill

The International Paper Co. has announced that it will build a 200-ton kraft paper mill in the Carolinas, the exact site not being mentioned. In a little more than three years International has pushed its Southern program as follows: acquired two kraft mills, completed a mill at Camden, Arkansas, is erecting a mill at Mobile, La., and now proposes the Carolina mill. When the latest mill is completed the International will have a daily tonnage of 900 tons of kraft.

No Second Unit At St. Helens Contemplated Now

A rumor that the St. Helens Pulp & Paper Co. at St. Helens, Ore., planned early construction of a unit to house a second paper machine was not confirmed by General Manager Max Oberdorfer in an official statement to PACIFIC PULP & PAPER INDUSTRY. Mr. Oberdorfer stated that the present conditions of production in kraft paper were not favorable for expansion at present. The St. Helens mill has a daily capacity of 60 tons of kraft paper.

Braun Now Heads Leadbetter Operations

Carl E. Braun, superintendent of the Columbia River Paper Mills, Vancouver, Wash., for the past year, has been named general superintendent of all Leadbetter mills, with headquarters in Portland.

Mr. Braun's first connection with the pulp and paper industry was with the Crown Willamette Paper Co. at Camas, Wash., where he was employed as assistant chief

CARL E. BRAUN

electrician. Five years ago he became electrical engineer for the Columbia mills, continuing in this capacity until last December, when he was made superintendent.

Mr. Braun is succeeded at Vancouver by Charles Frampton, for the past year assistant paper mill foreman of Pacific Mills, Ltd., Ocean Falls, B. C. Previous to the latter connection, Mr. Frampton was with the California Fruit Wrapping Mills, Pomona, Calif. Before going to Pomona he was employed at the California-Oregon Paper Mills in Los Angeles, which is also a Leadbetter mill. Mr. Frampton began his new duties at Vancouver this month.

At the same time announcement is made of the appointment of Joe Kaster, Jr., as general superintendent of the Oregon Pulp & Paper Co., at Salem, Ore., to succeed P. J. Lamoureux, whose resignation was effective December 1. Mr. Kaster has been assistant superintendent at Salem for the past two years.

The Leadbetter group of mills includes, in addition to the three mills at Vancouver, Salem, and Los Angeles, the Vancouver Kraft Co., Ltd., which is now reconstructing the old Howe Sound mill at Port Mellon, B. C., into a modern 100-ton sulphate pulp mill.

Norie Visits Mountain Country

James Norie, president of the Coast Carton Co., Seattle, accompanied by Mrs. Norie, was a Portland visitor last month, stopping en route home from a two weeks' vacation spent in the inter-mountain country.

T-R-A-D-E - T-A-L-K

Devoted to the Paper Trade of the Western States

Western Paper Converting Revises Sales Plan

The Western Paper Converting Co. at Salem, Ore., has severed its sales connection with the Johnson, Carvell & Murphy Co. of Southern California and with the Johnson-Lieber Co. of Oregon, Washington and Idaho, and has opened its own office in Los Angeles at 923 E Third St.

HAYS REHM

Malcolm G. Smith will take care of the Oregon territory and Frank E. Skrivanic will handle Washington and Idaho under the new sales arrangement. The Johnson-Locke Mercantile Co. will continue to handle the sales in Northern California. Lloyd Riches, vice - president of the Western Paper Converting Co. states that the general sales office of his company will be moved from Salem to San Francisco as soon as arrangements can be made.

Mr. Hays Rehm, who will be in charge of the Los Angeles office, has been in the paper business about six years, making his start with the Mutual Paper Corp. in Seattle (now Blake, Moffitt & Towne). He was for two and one-half years in charge of the purchasing department there. Later he was with the Johnson-Lieber Co. at Portland, where he sold, among other products ,the wares of the Western Paper Converting Co. W. J. Roughton will be assistant at Los Angeles.

New Price List Issued by Carter, Rice & Carpenter

Price list No. 42 issued by Carter, Rice & Carpenter of Denver has just made its appearance containing many new lines. These are leather fold, Wyoming bond, in the firm's own make in all sizes and weights, Capri book, novelty enameled Italian tints of ivory, green and blue, Union water-marked bond, double service bond in five colors, Hammermill laid antique, Meldon laid novelty announcement cards in seven colors, Hampton Court velvet stock, Cambrai bond in colors only, tough checks and calendar board. The company is manufacturing a new line of air mail envelopes substituting striped borders for the single stripe hitherto used. Crews have been working night and day getting out special envelopes and folders used by those persons who prefer something original in their Christmas cards.

Mielke Urges Advertising Appropriation

A. W. Mielke, of the Portland Blake Moffitt & Towne organization appeared late in November before the Governor and other Oregon state officials with a proposal, backed by Oregon business men, that a state tax be levied in Oregon for the purpose of raising a yearly appropriation for state advertising. At present the entire financial burden of state advertising in Oregon and Washington is carried by the respective chamber's of commerce, while in California a state tax is levied.

To gather material for his talk Mr. Mielke, conferred with Chamber of Commerce officials in Seattle and while in the city spent some time at the Seattle division of his firm.

Denver Paper Men Aid Community Chest Drive

Denver paper houses aided materially in putting over the annual community chets drive in that city, both in donations and in allowing employes time to solicit for the fund. Joseph Bamber, Jr., of the Butler Paper Co. served as colonel of the jobbers division and chose for two of his aides P. E. Hansen, Carter, Rice & Carpenter Paper Co., and Nick LaGuardia of the Graham Paper Co. Although the drive itself fell a little short the jobbers division went over the top. This same division is going to help the others try to bring in some belated and increased pledges.

J. H. Leatherman Cops Sales Prize

That Pacific Coast paper salesmen are right up at the head of the class and need no pointers in sales psychology from their eastern brothers was proven this month when J. H. Leatherman, salesman with the Seattle division of Blake, Moffitt & Towne, won the monthly award offered in national competition by the L. L. Brown Paper Co. The prize, $25.00, is given each month for the report of the most interesting instance of creative salesmanship involving L. L. Brown papers.

Making Complete Change in Sample Cabinets

Sample cabinets furnished by the Butler Paper Co. at Denver are undergoing spring cleaning far in advance of the calendar. Salesmen of the company are aiding customers in bringing their cabinets up to date, eliminating all obsolete cards and substituting current styles for them. Two new cover lines have just been added—Nu-art and Campan in eight colors. Sales of Christmas cards and fine stationery have exceeded those of last year by an appreciable margin.

Use Printed Specimens to Boost Sales

The Denver branch of the Graham Paper Co. has just put up a large display board containing 25 specimens of fine finished work printed on Graham papers to show customers the possibilities of these papers. All the specimens are of work turned out by leading Denver printing firms.

Ayres Presides At Sales Banquet

R. C. Ayres, advertising manager of the Zellerbach Paper Co., San Francisco, presided at the Second Annual Sales Managers' Conference held by the Zellerbach sales executives at San Francisco, Nov. 10-12.

Paper Weight Postal Charts In Demand

A very hearty response has been received by Blake, Moffit & Towne, San Francisco paper distributors, to queries sent to Pacific Coast printers and advertisers, asking if they wish copies of a set of Paper Weight Postal Charts. These charts, published by Blake, Moffitt & Towne, enable anyone to know at a glance just what any proposed mailing will weigh before specifying the stock on which it is to be printed. A large number of printers and advertising people were asked if they wished these charts free and a large number replied in the affirmative.

The chart consists of a series of carefully compiled tables, showing the individual weights of commonly used letterheads, postcards, and blotters. It tells in advance whether the planned mailing will weigh more or less than one ounce, two ounces, etc.

The following is an illustration of the way in which the chart may be used to estimate a proposed mailing. The figures given in hundredths of an ounce are copied from the chart and added to give the weight of the mailing. Let us say that the proposed mailing consists of the following:

	Weight Individual
Letterhead	
8½"x11", 20-lb. stock	16 oz.
Envelope	
No. 9, 20-lb. stock	15 oz.
Government Postcard for reply	10 oz.
4-page folder—page size 8½"x11", 80-lb. stock	54 oz.
Total	95 oz.

This indicates that the total of the four pieces will weigh approximately 95/100 of an ounce which is suggested by the chart as the safety deadline, heavier than which one should not plan a mailing to be posted at the one ounce weight.

Paper Firm Employes to Hold Annual Banquet

Employes of the Carter, Rice & Carpenter Paper Co. of Denver will hold their annual banquet at the Oxford Hotel in that city on December 29. The banquet is one of the biggest affairs of the year for the firm to which all employes look forward eagerly. The sales force of the firm will meet during the day and discuss plans for the coming year while the evening banquet for all employes will be devoted entirely to eating and fun. The ladies of the organization will be tendered a theatre party the same evening.

Dixon Takes Distribution for Right of Way Bond

The Dixon Paper Co. of Denver has taken over Rocky Mountain distribution for Right of Way Bond, a new line of rag bond. Sample envelopes containing all styles of this bond and in nine colors have been mailed to Dixon customers throughout the territory. The new Dixon price list has also made its appearance containing many new lines the company has taken over. These price lists are issued in loose leaf form permitting of changes at a minimum of expense.

California-Northern Moves Offices

The new California Northern Paper Co., recently organized in San Francisco by Joseph Casse, has moved its office to 375 Brannan St., where its warehouse stocks are located. The office of Mr. Casse has been at 369 Pine St. A Seattle office is to be opened later.

Zellerbach Holds Standardization Meeting

Matters pertaining to standardization of lines and other affairs regarding the internal operations of the Zellerbach Paper Co. were discussed at a Standardization Meeting held in San Francisco, Nov. 28, 29 and 30 by headquarters executives and division managers. The meetings were held at the Commercial Club rooms and were attended by delegates from all parts of the West. Harold L. Zellerbach, sales manager, presided and Lee Larimer was secretary.

Speakers included Harold L. Zellerbach, Mason B. Olmsted, assistant to the sales manager; Louis A. Colton, director of purchases; A. L. Bennett, San Francisco; Eugene A. Breyman, San Francisco, and Rolin C. Ayres, advertising director, San Francisco. Representatives of Fibreboard Products, Inc., and the Crown Willamette Paper Co., also attended.

One of the subjects discussed by Mr. Olmsted was "Plans for the Proper Training of Young Men Entering Into Our Organization," and a committee was named to define a program to be followed. Mr. Breyman talked on "Net Profit Control" and Mr. Ayres on "Our Future Advertising and Policy in Securing Sample Books."

Towne Returns from Eastern Tour

J. W. Towne of Blake, Moffitt & Towne returned December 8 from an extended eastern trip which included visits to the mills represented on the Coast by his firm. Before Mr. Towne left for the east, he had charge of the purchasing activities of the company. This work has now been taken over by E. A. Doran, who also has charge of sales. On his return Mr. Towne assumed larger executive responsibilities in the firm.

Duck Soup for This Bunch

Altho they didn't all get out to the flats, officials of the Seattle division of Blake, Moffitt & Towne enjoyed at least one duck dinner this month. Ralph H. Miller, who was president of the Mutual Paper Corp. before it was taken over by Blake, Moffitt & Towne, paid a visit to his old associates and brought with him a bag of ducks from the Nisqually river tide flats.

Tompkins Sees Tia Juana Races

George I. Tompkins, vice-president and general manager of the Sierra Paper Co., Los Angeles, and wife, made a trip to San Diego the latter part of November, the trip being both a business and pleasure one. Mr. and Mrs. Tompkins went to Tia Juana on Thanksgiving Day to attend the opening races.

Al Kuhn At Seattle

Alvin R. Kuhn, formerly of the Pacific Coast Paper Co., has been appointed to the position of Director of Sales of the Seattle division of the Zellerbach Paper Co. Mr. Kuhn has served as a sales executive in the paper business for a number of years.

Well, He's Worth the Cigars, Eh?

Cigars were in order at the Seattle office of Carter, Rice & Co., Wednesday, Nov. 21, when E. E. Embree, sales manager, announced the addition of a seven and one-half-pound boy to his family.

Set-up
Folding
Corrugated
Solid Fibre

BOARDS and BOXES

A department for interests allied with the pulp and paper industry

Board Mills and Paper Converters

R. J. CLARK
One of
New Owners of
Standard Carton Co.
Tacoma

Take Over Tacoma Paper Box Factory

R. J. Clark, salesman for the past year for the Columbia Paper Box Co., and W. E. Fitch, machinery house salesman, both of Portland, purchased the Standard Carton Co. of Tacoma from Roy Davidson December 1. The new owners will incorporate, and the business will be continued under the old name.

Mr. Clark has had wide experience in the paper box industry, having been connected with the H. Wesley Hutchins Co. of Auburn, Maine, manufacturers of folding boxes, before coming to the Coast. His successor at the Columbia Paper Box Co. has not been named.

Warren Heads New Paper Box Merger

Will J. Warren, head of the Independent Paper Box Co., Oakland, Calif., has been elected president of the recently organized Consolidated Paper Box Co., which has taken over and merged several paper box plants in the San Francisco Bay district. Mr. Warren has been in the paper box business for more than 15 years and is an outstanding figure in this industry in California.

Edgar L. Stern of the York-Stern Paper Box Co., San Francisco, is vice-president and general manager of the Consolidated and Louis Raisin of Raisin & Zaruba, San Francisco paper box manufacturers, is vice-president and sales manager. Louis Thiebaut, of Thiebaut Brothers, another San Francisco firm, is secretary and Julian Hammerslag of the Enterprise Paper Box Co. is treasurer. All of these companies are included in the merger.

Directors are: W. J. Warren, Edward L. Stern, Louis Raisin, Donald Berliner, Julian Hammerslag, E. Guy Colvin, R. E. York, J. L. Dobbins and Louis Thiebaut.

Unconfirmed rumors are heard in San Francisco to the effect that several Los Angeles paper box plants are being approached with a view to joining the merger.

Stock in the new company is being traded in San Francisco. Earnings for November are reported as $16,350.26 net, after depreciation but before Federal taxes are paid. This is in excess of dividends required for the full quarter ending February 1, 1929, on the entire outstanding issue of 37,500 shares of class "A" stock.

New Waxed Paper Factory At Los Angeles

A new factory building is nearing completion on the corner of San Vincente and Ardmore streets, Southgate, California, to be the home of the California Waterproof Paper Co., a company recently organized by Fred L. Kennedy, who is secretary-treasurer and manager of the Cleveland Waterproof Company, Cleveland, O.

Mr. Kennedy states that as soon as the building is completed some $10,000 worth of equipment will be installed, some of it being new and some brought from the Cleveland factory.

The new factory represents an investment of $25,000, Mr. Kennedy says. The property measures 120 by 150 feet, and the building is 35 by 110 feet in size, being an attractive brick structure.

Mr. Kennedy says that for the present the factory will be devoted to the manufacture of oiled and waxed papers, oiled stencil board paper, and a Cellophane substitute; products also manufactured at his Cleveland plant.

"The California Waterproof Paper Company," said Mr. Kennedy, "is a family affair, my wife being president of the company, C. C. Marshall secretary, and I treasurer and manager. I have been coming to California for a number of years, and having bought a home in Walnut Park, California, I decided I needed something to keep me busy, which accounts for the new factory. I shall continue to be manager of the Cleveland factory."

L. A. Box Makers Protest Cigarette Advertising

The paper box manufacturers of Los Angeles through their local association have gone to bat with a prominent cigarette manufacturer for pushing the slogan, "Reach for a Lucky instead of a Sweet." The contention of the box makers is that the slogan constitutes a direct attack upon another type of merchandise and since the Los Angeles paper box makers do a great amount of business with the candy manufacturers they have interpreted the advertising as a blow in their direction.

The tobacco company's advertisements have been discussed at several meetings of the Los Angeles Paper Box Manufacturers Association and the outcome has been an exchange of much correspondence between J. C. Bonnell, secretary of the Los Angeles association and George W. Hill, president of the American Tobacco Co. Copies of the correspondence have also been sent to Howard P. Beckett, commissioner of the National Paper Box Association, G. R. Browder, general manager of the Paperboard Industries Association and to Hugh Peat, secretary of the Pacific Coast Paper Box Manufacturers Association.

The Los Angeles Association protested the slogan

used by the cigarette manufacturer on the grounds that "instead of boosting cigarettes in an ethical manner you are running down the use of 'sweets'." Charges were made that the advertising was not only unfair but untruthful to a considerable extent.

President Hill replied for the tobacco company and his communication was read at a meeting of the Los Angeles association. Following the reading the Los Angeles men drafted another lengthy and rather warm letter making specific attack on points President Hill had offered to defend his company's advertising. In this second letter, which was dated December 4th, President Hill was informed that correspondence on the subject was being handed over for publication and that the matter would also be taken before the Associated Secretaries of Southern Calif., thereby being broadcast to industrial Los Angeles and nearby cities.

In the December issue of Western Baker, the trade journal of the baking industry on the Pacific Coast, the cigarette advertising was attacked in an editorial entitled, "Nicotine vs. Pastries—Or What Have You."

It is clear that the Los Angeles Box Makers do not propose to let the type of advertising issued by the cigarette company go unchallenged with the possible result that it will reflect on their own business of manufacturing boxes for the confectionery trade.

Griffin Envelope Increases Capacity

Three new folding machines are being installed in the Griffin Envelope Co. plant in Seattle.

"A steadily increasing volume of business has made the addition necessary," J. W. Griffin, president of the company declares. "At present we have a capacity of 500,000 envelopes a day and with the added machinery we should reach a million a day output."

Mr. Griffin has been manufacturing envelopes on the Coast for more than 20 years, establishing first in San Francisco, later in Los Angeles. He sold out in both cities, intending to retire but went back into the game when he came to Seattle in 1923.

Envelope Business Is Better

Business is expanding so rapidly for the Northwest Envelope Co., Seattle, that "Jake" Herth, shop superintendent, is beginning to give serious consideration to a double shift program. At present this company is turning out from 300,000 to 350,000 envelopes daily.

The new "pay postage on return" mailing system has caused a large number of firms to increase their circular advertising and Mr. Herth states that this fact has greatly increased the volume of envelope business.

Waste Paper Plant in New Quarters

The Pacific Waste Paper Co., Portland, was moved into new quarters last month at Fifteenth and Pettygrove streets, occupying a quarter block. New equipment installed in the plant includes a large electric bailer of late type. No further improvements are planned for the present, it was said.

C. F. Schaub is general manager of the company.

Warnecke Recuperating in California

W. E. Warnecke, president of the Inland Paper Box Co. of Denver, is sojourning in California taking a well earned rest from business. Warnecke has not been in the best of health for some time and on advice of physicians has given up work for a time.

New Converting Plant Delayed

Because of delay in receiving equipment for the West Coast Paper Products Co., Portland, the company will be unable to begin production until about March 1, according to W. E. Stoppenbach, head of the company.

Although it was learned that specialties made from boxboard are to be manufactured, specific information was withheld. An unconfirmed rumor persists that production will be confined to milk bottle caps.

The recently incorporated company has remodeled a one-story concrete building at 1193-95 Union Avenue N., and completed the preliminary work of installing machinery.

L. A. Box Makers Meet Oftener

Of late the Los Angeles Box Manufacturers Association has been holding meetings every two weeks in order to get the organization to functioning more effectively, but John B. Bonnell, secretary, states that beginning with the new year it is planned to hold but one regular meeting a month. The association recently became affiliated with the Los Angeles Credit Men's Association.

Lisenby Heading Westward

Ben Lisenby, St. Joseph Paper Box Co., St. Joseph, Mo., stopped off in Denver early in November for a couple of days calling on the trade. He is covering the entire western territory on this trip which will take him to leading Pacific Coast cities.

Holman Returns From Long Tour

Rufus C. Holman, head of the Portland Paper Box Co., accompanied by Mrs. Holman, has returned from a six weeks' tour on which Vancouver, B. C., Honolulu and San Francisco were visited in the order named.

PRODUCTION OF BOXBOARD

September, 1928

Based on Reports to the U. S. Department of Commerce

	Production	per Cent of Capacity	New Orders	Unfilled Orders	End of Month Stocks End of Month
1928—					
September	227,421	86.1	234,458	87,262	45,815
August	230,750*	77.7*	236,682*	81,816*	47,709*
Nine months	1,994,531	78.9	2,009,370	.....	.....
1927—					
September	225,617	82.0	235,936	116,383	42,923
Nine months	1,851,845	73.2	1,891,066	.....	.....

*Revised.

PRODUCTION OF BOXBOARD

October, 1928

Based on Reports to the U. S. Department of Commerce

	Production	Per Cent of Capacity	New Orders	Unfilled Orders End of Month	Stocks End of Month
1928—					
October	243,929	81.6	240,753	82,898	42,978
September	224,971*	85.2*	234,449*	87,097	45,271*
Ten months	2,236,010	79.1	2,250,114	.....	.....
1927—					
October	224,195	75.5	220,215	102,810	41,630
Ten months	2,076,040	73.4	2,111,281	.....	.....

*Revised.

New Types
New Models
New Machines

EQUIPMENT

Manufacturers of, and dealers in, equipment used by pulp and paper mills, board manufacturers, converting plants, paper merchants, or any other branch of the industry may make their announcements in this department.

New Dealers
New Branches
Appointments

Warners Equalizer Now On the Market

Although Warner's Equalizer has been functioning for some years in a number of paper mills it is now being offered to the general trade for the first time. The Smith & Valley Iron Works of Portland recently purchased Mr. Warner's patents, and, having made some refinements in the original device, announce this month that the equalizer is available now to all.

Warner's Equalizer is the invention of Thomas Warner, paper expert of the Crown Willamette Paper Co., a man who has served that company nearly 50 years. Many of his equalizers are now in daily use in Crown Willamette mills. The Warner equalizer claims, among other features, simplicity, close and accurate control, easy adjustment and quick action in stock regulation.

Buffalo Forge Celebrates Golden Anniversary

Fifty years in business and still going strong! The Buffalo Forge Co., engineers and manufacturers of Buffalo, N. Y., are now celebrating the fiftieth anniversary of the founding of their business, which began with the manufacture of a portable forge. In 1884 the company entered the heating and ventilating field and that phase of the company's business forms an important activity in the pulp and paper industry business today. A number of Buffalo Forge Co. installations have been made in Pacific Coast pulp and paper mills in recent months.

Traylor Vibrator Offers Improved Chip Screen

A new chip screen with all steel sash and two-slope screen is now offered by the Traylor Vibrator Co. The screens are wire cloth and mounted so that the lower screen slopes 15 degrees more than the upper screen. This feature and the electric vibrating principle which gives the screen 3600 positive vibrations per minute prevents blinding of the new Traylor screen. The all-steel sash is a highly important feature, making a screen that functions better and is extremely durable.

Two New Allis-Chalmers Publications

Texrope drives are discussed and profusely illustrated in Bulletin No. 1228-H recently issued by the Allis-Chalmers Mfg. Co. The publication shows the many applications of this popular drive. Another Allis-Chalmers bulletin, No. 1118-E, just published, covers a polyphase motor series.

Griffith Making Porous Rubber Roll

The Griffith Rubber Mills of Portland report considerable success with their patented porous rubber rolls which have been installed in several Pacific Coast mills to supplant the old style of granite roll. Mr. Charles R. Griffith, who developed the roll, began his experiments about ten years ago when he noticed that the mills were having trouble to get good logs for top press rolls. He studied the wood rolls under a magnifying glass and attempted to produce a porous rubber covered roll which would permit the sheet to leave the roll readily.

Early experiments with cork mixed in the rubber gave way to a mixture of ground cotton fibre and felts. Rolls have also been produced without using any fibre, the porosity being obtained with chemical action of the rubber compound.

The advantage claimed for the porous roll over the granite roll is that it can be made light or heavy as desired and a porous cover of any consistency can be secured. With a top roll testing 20 to 30 on the plastometer and a bottom roll testing about 40 the wear on the felt is less. The nip is shortened, the felt passing between the rolls in very nearly a straight line.

Makes Long Western Trip

Trying to get home for Christmas was one of the objectives of B. W. Dean of the E. D. Jones & Sons Co., manufacturers of paper making machinery at Pittsfield, Mass. Mr. Dean left the home office on October 8 and made a thorough tour of the Pacific Coast mills, from Ocean Falls, B. C., on the North to Los Angeles, California, on the South. He plans to return East through the Southern Gulf states. Mr. Dean reported good business and expressed his confidence in the future development of the Coast in pulp and paper manufacture.

Biggs Installs Two More Rotaries

The Biggs Boiler Works Co., Akron, Ohio, have just secured an order for two additional rotary bleaching boilers to be installed at the plant of the River Raisin Paper Co., Monroe, Mich., making a total of ten 14-foot bleaching boilers installed in this plant.

Biggs reports that their new process of welding has been developed to the extent that they are now building heavy welded digesters and rotary bleaching boilers by the electric welded process. There are eight special 14-foot diameter machines in production at this time.

Cameron Machine Adds to Factory

The demand for Cameron slitting and roll-winding machines has increased so rapidly during the past few years, that the factory capacity of the Cameron Machine Co., of Brooklyn, N. Y., has been taxed to its utmost.

Three new buildings with a floor area of 15,000 square feet have been added to the plant at a cost of over $100,000 to take care of increased production, at the same time anticipating a steadily mounting volume of sales.

Salt From Spain

The first full shipload of salt from the Old World ever to be delivered in the Pacific Northwest was discharged at Tacoma, Wash., about the middle of December. It was consigned to the Hooker Electro Chemical Co., which is now building a plant at Tacoma for the manufacture of paper making chemicals.

Even Drying
Across Entire Sheet
consistently accomplished with

ROSS-GREWIN
High Pressure Ventilation

In actual operation this system has saved more than 800 lbs. of steam per ton of paper dried. The small supply pipes do not interfere with operation of the machine, and the requirements for space, power, and heat are at a minimum.

Write for details of the comparatively small initial cost for installation of this system in your mill.

J. O. ROSS ENGINEERING CORPORATION

208 W. Washington Street, CHICAGO
Main Office—30 E. 42nd Street, NEW YORK
519 American Bank Bldg., PORTLAND, ORE.

ROSS ENGINEERING OF CANADA, LIMITED
NEW BIRKS BLDG., MONTREAL

ROSS SYSTEMS
HEATING—VENTILATING—DRYING

When writing to J. O. ROSS ENGR. CORP. *please mention* PACIFIC PULP & PAPER INDUSTRY

Crown-Zellerbach to Increase Capital Stock

The Crown Zellerbach Corp. early in December mailed a letter to its stockholders and holders of voting trust certificates asking authority to increase the authorized amount of capital stock in order to finance the growth and development of the corporation and its subsidiaries.

It is proposed to amend the articles of incorporation so that a total of 3,000,000 shares of cumulative preference stock and 7,500,000 shares of common stock shall be authorized, and to reclassify the 200,000 shares of $5 dividend cumulative preferred stock now outstanding as Series A cumulative preference stock. In consideration of the fact that the proposed amendments would alter the preferred position of the $5 preferred stock, it is proposed to increase the dividend rate of this stock to make it convertible for a period of five years into common stock (voting trust certificates) of Crown Zellerbach Corp. on the basis of three shares of common stock for each share of preferred stock.

In connection with these proposals, attention is called to the fact that an investment of over $6,000,000 is being made in a new kraft pulp, paper and board mill (National Paper Products Co. at Port Townsend, Wash.), which is being temporarily financed out of earnings and current borrowing, but which should be capitalized.

International Paper Co. Shows Loss

The consolidated earnings statement of the International Paper Co. for the third quarter ending September 30, 1928, shows a total revenue of $4,399,396.81, an increase over the figure of $4,015,364.38 for the same quarter last year. The total revenue for the first nine months of 1928 also showed an increase over 1927 of $2,087,294.28. Net revenue available for dividends on International Paper Co. stocks, however, show a decrease of $115,040.26 for the first nine months of 1928, while the balance of net revenue or deficit to surplus shows a falling off of $3,103,210.10 over the company's financial status of a year ago.

Straw Pulp Near Spokane Proposed

M. F. Mendenhall, Sr., has been reported as trying to interest the citizens of Deer Park, a community near Spokane, Wash., in the building of a straw pulp and paper mill. A report from a leading citizen of Deer Park states that Mr. Mendenhall had outlined his plan in a general way, but gave no assurance that the plant would be built at Deer Park if built. Mr. Mendenhall was therefore notified that a committee would not be justified in devoting time and energy to the enterprise until it had some such assurance that it would get the plant.

Water Rates On Pulp Are Continued

The United States Intercoastal Conference has extended the emergency rate on wood pulp beyond the former expiration of Dec. 31. This rate is for minimum shipments of 250 tons, 30 cents per 100 lbs. for pulp compressed to a density of 51 cu. ft. or less per 2000 lbs., in iron or wire strapped bales.

Hawley Sr. Returns From Abroad

W. P. Hawley, Sr., accompanied by Mrs. Hawley and his grand-daughter Adele Hawley, returned to the United States on December 7, coming to San Francisco from the Orient on the N. Y. K. liner Korea Maru. The trip took the Hawley party around the world and lasted several months.

Anti-Dumping Investigation Still Continues

The investigation of reported violations of the United States Anti-Dumping Act on the part of foreign pulp producers is still progressing under the direction of the U. S. Treasury Department. A preliminary report issued by the department states that "after careful investigation the Secretary of the Treasury has found that such pulp manufactured in Austria and Yugoslavia is not sold to the United States at less than the foreign home market value and that, therefore, a finding of dumping can not be issued.

"The investigation in the case of importations from other countries has not been concluded."

The latter statement is significant inasmuch as it is understood that the investigation was directed principally at the Scandinavian producers.

It is learned that the government has requested important data from some Pacific Coast mills bearing on alleged anti-dumping practices.

Congressman Johnson Explains Reserve Bill

The Olympic forest reserve bill does not apply to the eight other forest reserves of the state of Washington, Albert Johnson, congressman from the seventh Washington district, said at Hoquiam recently. Mr. Johnson is now preparing maps and diagrams to show what the forestry plan of federal fire protection and reforestation really means. He believes that a new Olympic forestry bill can carry a feasible plan for government stub logging roads from contact points into reservations a reasonable distance, the expense to be reimbursable from sale of government timber.

Carruthers Promoted At Powell River

H. Carruthers has been appointed assistant general superintendent of the Powell River Co., Ltd., succeeding A. E. Kellogg, who resigned after about six months service with the company. Mr. Carruthers is an old employe of the Powell River company and for several years has been master mechanic. His new job will make him right hand man of W. B. Zumwalt, general superintendent. Mr. Kellogg came to the coast from eastern Canada, where he had been employed by the International Paper Co. He is returning to his home in the East.

Straw Plant Proposes Stock Sales

Little definite information on the proposed mill of the Palouse Pulp & Paper Co. which is being sponsored by H. D. Wagnon and proposes construction of a 20-ton straw pulp and paper mill. Mr. Wagnon has been demonstrating his process to citizens at Palouse, Wash., in the grain country, and a committee has been formed to make a drive for stock subscriptions. A. L. Maxwell, has been named president of the Palouse Co., but inquiries addressed to him and other officers of the company have brought no response.

Grays Harbor Company May Float New Bonds

The Grays Harbor Pulp & Paper Co., is expected to offer soon an additional issue of $1,250,000 of first mortgage bonds to finance a part of the new paper mill unit now under construction at Hoquiam, Wash. According to Blyth, Witter & Co., who will handle the issue, if offered, the total plant investment at Hoquiam upon completion of the paper mill unit will be about $6,000,000.

PERKINS-GOODWIN COMPANY

Established 1846

551 FIFTH AVENUE, NEW YORK

-:-

AGENTS FOR

PULP–PAPER MILLS

-:-

SOLE SELLING-AGENTS

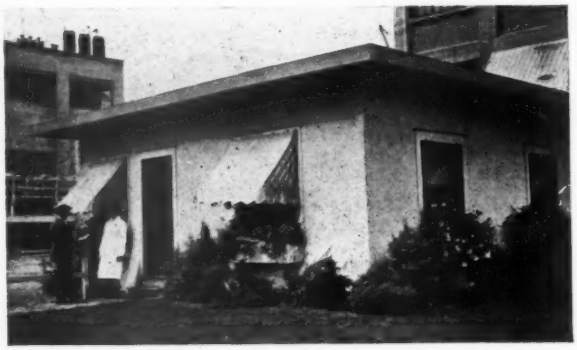
FOR

SPAULDING PULP & PAPER CO.

NEWBERG, OREGON

S·A·F·E·T·Y FIRST—LAST and ALWAYS

The Best Safety Device Known Is a Careful Man



First aid station at Camas mill of Crown Willamette Paper Co. M. W. Kincaid, Supervisor of Safety, is discussing accident prevention with the nurse, Miss Monte Caldwell

Accident Prevention at Camas

By ROY W. KELLY

Industrial Engineer, Crown Willamette Paper Co.

THE safety measures which are now in effect at the Camas mill of the Crown Willamette Paper Co. are in a large part the slow development of several years' effort. As a member of the National Safety Council, the company has kept in close touch with current tendencies in the safety field and has, from time to time, adopted such measures as seem to be in keeping with the best modern practices. In discussing our work it should be understood that we have, as yet, no claim to any outstanding safety record in comparison with other industrial plants. We are merely trying consistently to encourage safe practices, and to surround our men with safe working conditions.

Safety activities can never be sharply separated from other parts of an industrial relations program. In other words, careful selection of new employes, sanitation, housing, and other working conditions all have a direct bearing upon the number of accidents which employes suffer annually. In this connection, a recent survey of several thousand plants throughout the United States made by the Federated Engineering Societies of America, shows conclusively that those plants which are well managed in other particulars have been steadily improving their safety records. Other plants, where the management has not shown the same outstanding ability, have failed in safety, just as they have in controlling other important matters.

At Camas, the accident prevention work is connected with the employment office, the two cooperating closely at all times. Every new employe is sent from the employment desk to the Safety superintendent, who spends about half an hour with each man, carefully covering all points essential to a correct understanding of the company's safety policies. If there is not time for this instruction when the man is first hired, he is brought in for this conference within the first two or three days after his name appears on the payroll. Each foreman supplements this instruction by additional information regarding the particular hazards of the work in his own department.

Constant stress is laid upon the educational side of safety, by a variety of measures which are in constant use. These include bulletin boards, safety committees, occasional evening meetings of employes and their families, talks to individual employes, special mimeographed or printed bulletins issued on important subjects, and articles published in the monthly journal, "Making Paper". One or two home-made posters are produced each week to supplement the posters distributed by the National Safety Council.

The workmen's safety committee consists of approximately 35 members, representing each department in the mill. This committee considers employes' suggestions, reviews all important accidents, and through subcommittees, makes special investigations in the various departments. The work of this committee is supplemented by a committee of executives, consisting of four or five members, including the assistant mill manager, resident engineer, safety superintendent, and representative department heads. Members of these committees are changed every six months, thus allowing different employes to become acquainted with the accident prevention policies of the company and this important work. Every accident of any importance is

(Turn to page 52)

STATEMENT OF ACCIDENT EXPERIENCE—MONTH OF OCTOBER, 1928

Rank	Company—	1928 Standing Jan. 1 to Date	Number Employees	Man Days Worked	Number Lost Days Accidents	Total Days Lost	Lost Days Per 1000 Man Days
1	Pacific Straw Paper & Board Co.	(*)	76	2,000	0	0	0
2	Tumwater Paper Mills	(10)	87	1,133	0	0	0
3	Longview Fibre Co.	(8)	316	9,164	6	15	1.64
4	Fibreboard Products Inc., Port Angeles	(9)	254	6,377	2	12	1.88
5	Everett Pulp & Paper Co.	(2)	382	10,102	3	30	2.97
6	Columbia River Paper Mills	(11)	235	6,473	4	20	3.09
7	Inland Empire Paper Co.	(4)	256	7,164	0	29	4.05
8	Crown Willamette Paper Co.	(1)	1,140	36,843	6	161	4.37
9	Cascade Paper Co.	(5)	230	6,142	2	27	4.39
10	Fibreboard Products Inc., Sumner	(6)	122	3,392	1	15	4.42
11	Washington Pulp & Paper Co.	(7)	376	10,916	6	54	4.95
12	Pacific Coast Paper Mills	(3)	61	1,258	1	10	8.00
13	Rainier Pulp & Paper Co.	(*)	235	6,953	5	92	13.23
14	Fidalgo Pulp Mfg. Co.	(12)	83	2,543	2	35	13.75
15	San Juan Pulp Mfg. Co.	(13)	125	3,921	1	95	24.23
			3,978	114,381	39	595	5.20

Figures set in black face type represent standings below the average of the month.
*Reports incomplete for year.

AFAFAFAFAFAFAFAFAFAFAFAFAFAFAFAF

SPEED and FINISH

... a single felt must serve both!

"Better Finish!" "BETTER FINISH!" Constantly increasing emphasis in the insistent demands of the buyers of boards. Yet finish is but one of the mill problems.

To deliver finish profitably requires speed... uninterrupted high production. Albany designers have developed top and bottom felts for board machines that serve both ends remarkably well. Ample porosity for the speedy water removal essential to economical high production; weaves and naps that make possible the sort of finish that the trade demands.

Every order for an Albany Felt is a "special order". Every Albany Felt is "tailor-made" to fit specified conditions on the definite machine and position for which it is individually designed.

Further . . . Albany tops and bottoms, by the "Tailor-Made" principle of designing, fit perfectly the special requirements of the machine for which they are intended.

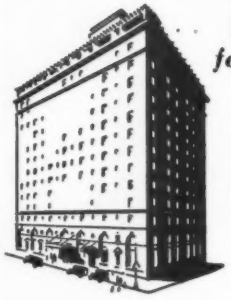
There's one sure way to effect the happy combination of finish and speed . . . specify Albany "Tailor-Made" Tops and Bottoms.

ALBANY FELTS

TAILOR-MADE BY ALBANY FELT COMPANY, ALBANY, NEW YORK

AFAFAFAFAFAFAFAFAFAFAFAFAFAFAFAF

The New Washington



Seattle's Hotel-Home for Pulp and Paper Men

A hearty welcome awaits you at the New Washington. Quiet rooms, carefully prepared food, sincere service — everything to make you feel completely at home.

SEATTLE
Second at Stewart

Accident Prevention At Camas

(Continued from page 50)

reported in detail by the foreman, and his report is subject to further investigation made by the safety superintendent, and by the safety committee. Where the importance of the accident justifies such a measure, a special hearing is held.

The Camas mill is very proud of its first aid station which is modern and equipped to take care of all minor injuries. The nurse is on duty throughout the day and several employes who have had first aid instruction, take care of injuries which may occur on the night shifts. Several doctor's offices are within a few blocks of the mill, making it possible to get medical assistance within a few minutes form the time accident occurs.

Accident records are kept in accordance with state requirements in each of the states in which the Crown Willamette operates, and in addition, statistical records are prepared monthly in accordance with the standards set by the National Safety Council. At the end of each three months, we prepare a report which shows the standings of the various departments in the two large mills at West Linn and at Camas, in relation to the accident record. All departments with perfect records are placed at the beginning of the list with a standing of one (1), and others are arranged in order, in accordance with the severity and frequency rates.

In general, the methods which are being followed at Camas are identical with those which are in effect at West Linn. We are trying to stress the importance of careful selection, promotion and transfer of employes, bearing in mind that the safe man is one who is engaged in work which he is well qualified to per- of the session and that he was frequently caught smiling form, and who is happy in his company associations. Unless he is satisfied with his work and his working conditions, and is contented in his home surroundings, he cannot be expected to take the proper interest in company safety measures. There is a direct and very real relationship between labor turnover and accidents. Measures which reduce the first, have an immediate effect upon the second.

Otis Now Manager at Floriston

Malcolm Otis, who has been associated with the engineering staff at the Camas, Wash., mill of the Crown Willamette Paper Co. for many years, is now manager of the company's mill at Floriston, Calif.

Aberdeen Water System Without Customers

With the $1,600,000 industrial water system about 75 per cent completed, the city of Aberdeen, Wash., is still without customers for water. Rumors of several paper and pulp mills about to build on Grays Harbor have so far failed to materialize and the city faces the possibility of having to hold the system for some time before it will become a paying thing. The operating expenses of the plant, which will cost to around $15,000 annually, must be paid from one of two sources, either by guarantors who were anxious to have the system built and who guaranteed to put up $1,000 a year to pay running expenses if no market was available for the water when the plant was finished; or from the fund of the domestic water system.

Some grumbling also begins to be heard in Aberdeen that the failure of pulp and paper mills to locate there is caused by high rates charged by the local company for electric power. Complaints on high rates have existed for years, it is said. Some citizens point out as a specific example, that a chemical company went to another Pacific Coast city instead of Aberdeen. The Aberdeen city council is said to be making an effort to secure the power company for the city with the hope that lower rates may be secured if the plant goes under municipal ownership.

Kelly Arrives to Manage Hawley Mill

W. A. Kelly arrived in Oregon City early in December from Green Bay, Wis., to take over his new duties as mill manager of the Hawley Pulp & Paper Co. Mr. Kelly has served for approximately the past 20 years with the Northern Paper Mills at Green Bay, and the Marathon Paper Mills at Rothschild, Wis.

SIMONDS Circular Paper Slitters

Edge-holding—that explains why mills in every section are turning to SIMONDS for the Circular Slitters that give them better work and more production. Simonds Slitters are true to form and perfect mechanically.

Order them from any Simonds factory or service station.

SIMONDS SAW AND STEEL COMPANY
"The Saw Makers"
ESTABLISHED 1832—FITCHBURG, MASS.
Portland, Ore.; San Francisco, Cal.; Seattle, Wash.; Los Angeles, Cal.; Vancouver, B. C.

REED-SPAFFORD

Pulp Screen

For Ground Wood, Sulphite, Soda or Kraft Pulp

Built in Two Sizes

A Large Number of Reed-Spafford Pulp Screens Are in Daily Operation in Pacific Coast Pulp Mills

The REED-SPAFFORD PULP SCREEN is remarkably efficient. Its capacity is large and its power consumption is surprisingly low. Let us show you what a saving this screen means to you.

Improved Paper Machinery Company

NASHUA, N. H., U. S. A.

SHERBROOKE MACHINERY CO., Limited
SHERBROOKE, CANADA

IMPORTS OF PULP WOOD AND WOOD PULP INTO THE UNITED STATES BY COUNTRIES AUGUST, 1928

Compiled by the U. S. Department of Commerce, Bureau of Foreign and Domestic Commerce

(Figures Subject to Revision)

PULP WOOD

	Rough				Peeled				Rossed			
	Spruce		Other		Spruce		Other		Spruce		Other	
	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars
Canada	77,394	855,415	8,020	65,741	52,280	578,404	17,510	172,185	6,292	94,005	1,535	27,630
Newfoundland & Labrador	.....	.....	.....	.....	3,067	46,005	.....	.....	.....	.....	.....	.....
Total	77,394	855,415	8,020	65,741	55,347	624,409	17,510	172,185	6,292	94,005	1,535	27,630

WOOD PULP

	Mechanically Ground		Chemical Unbleached Sulphite		Chemical Bleached Sulphite		Chemical Unbleached Sulphate		Chemical Bleached Sulphate		All Other Wood Pulp	
COUNTRIES	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
Austria	.....	.....	.....	.....	200	14,816	.....	.....	.....	.....	.....	.....
Estonia	.....	.....	720	36,318	.....	.....	92	7,500	.....	.....	99	2,185
Czechoslovakia	.....	.....	97	5,213	50	3,722	.....	.....	.....	.....	.....	.....
Finland	630	12,316	8,361	366,375	.....	.....	2,242	109,291	25	1,540	.....	.....
Germany	.....	.....	2,234	115,748	4,079	309,562	.....	.....	63	4,189	27	2,113
Lithuania	.....	.....	114	5,851	.....	.....	.....	.....	.....	.....	.....	.....
Norway	857	12,777	935	50,866	2,627	209,287	633	32,659	100	5,238	.....	.....
Poland and Danzig	.....	.....	400	18,940	.....	.....	100	4,574	.....	.....	.....	.....
Sweden	25	750	25,933	1,382,309	3,186	220,603	21,864	1,155,520	350	18,050	.....	.....
Canada	13,875	348,633	12,822	644,978	17,224	1,344,379	12,275	754,757	145	8,897	641	48,373
Cuba	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	79	8,126
Total	15,387	374,476	51,616	2,626,598	27,366	2,102,369	37,206	2,064,301	683	37,914	846	60,797

Total Imports of All Grades of Pulp for August, 1928—133,104 tons; $7,266,455.

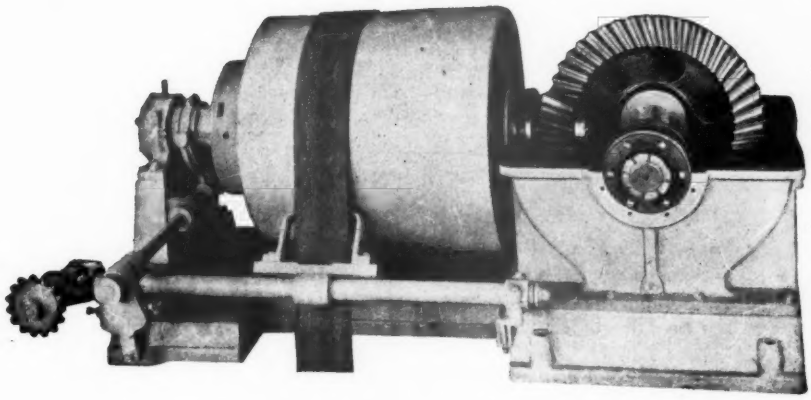
PACIFIC COAST EXPORTS—SEPTEMBER, 1928

	Tissues		Box Board		Other Paper & Strawboard		Paper Bags		Boxes & Cartons	
	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds
From LOS ANGELES—										
To Mexico	579	4,544	214	4,895	79	445	115	1,405	87	636
To Central America	190	754	.....	.....	.....	.....	.....	.....	.....	.....
To Orient	.....	.....	900	30,000	.....	.....	.....	.....	.....	.....
To Australia	.....	.....	574	18,581	.....	.....	.....	.....	.....	.....
From OREGON—										
To Philippines	.....	.....	.....	.....	.....	.....	774	12,761	.....	.....
To Orient	.....	.....	24,960	1,066,912	2,605	67,220	.....	.....	180	1,440
From SAN FRANCISCO—										
To Canada	238	524	412	951	166	1,300	243	3,910	.....	.....
To Mexico	25	258	86	753	.....	.....	.....	.....	15	50
To Colombia	59	280	.....	.....	.....	.....	.....	.....	.....	.....
To South America	30	208	1,210	38,400	.....	.....	54	430	.....	.....
To Central America	60	536	26	337	.....	.....	29	60	40	86
To Australia	439	3,304	16,953	516,598	133	1,702	232	3,156	58	362
To Philippines	917	11,240	1,351	38,125	690	14,000	20	270	1,399	2,706
To Orient	1,434	8,392	12,707	442,721	1,039	12,275	265	2,112	3,486	28,075
From WASHINGTON—										
To Canada	179	719	2,932	102,940	925	3,651	.....	.....	126	790
Totals	4,150	30,759	62,325	2,261,213	5,637	100,593	1,732	24,104	5,391	34,145

PACIFIC COAST EXPORTS—SEPTEMBER, 1928

	News Print		Book		Writing		Greaseproof		Wrapping	
	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds
From LOS ANGELES—										
To Mexico	72	811	36	210	82	375	.....	.....	398	6,000
From OREGON—										
To Canada	.....	.....	27	93	.....	.....	.....	.....	.....	.....
To South America	.....	.....	42	170	7,575	159,744	.....	.....	.....	.....
To Philippines	.....	.....	4,962	94,041	1,318	23,340	1,128	12,528	2,520	63,524
To Australia	.....	.....	363	11,566	2,964	58,570	.....	.....	.....	.....
To Orient	.....	.....	2,712	51,526	.....	.....	175	490	16,860	394,701
From SAN FRANCISCO—										
To Canada	.....	.....	131	780	.....	.....	.....	.....	.....	.....
To Mexico	140	2,521	.....	.....	.....	.....	.....	.....	.....	.....
To South America	.....	.....	.....	.....	386	7,739	.....	.....	.....	.....
To Colombia	.....	.....	.....	.....	.....	.....	.....	.....	26	386
To Central America	1,047	32,530	.....	.....	6,803	133,538	.....	.....	183	1,554
To Australia	.....	.....	379	1,951	.....	.....	404	4,210	.....	.....
To Philippines	.....	.....	.....	.....	383	9,998	62	501	.....	.....
To Orient	4,402	129,136	50	280	60	90	481	3,430	398	551
From WASHINGTON—										
To Canada	.....	.....	3,996	51,941	1,325	16,918	64	503	125	679
To Australia	.....	.....	3,204	53,680	385	6,811	29	650	.....	.....
To Philippines	.....	.....	5,640	96,596	215	2,481	.....	.....	.....	.....
To Orient	.....	.....	18,334	303,917	451	486	.....	.....	.....	.....
Totals	5,661	164,998	40,076	666,751	21,947	430,190	2,343	22,312	20,510	467,495

Washington shipped 72 tons ($5,000) of wood pulp to Japan.
Washington shipped 3 tons ($90) of wood pulp to Canada.



"M & W" SPIRAL BEVEL GEAR
DRIVE STAND

Patent No. 1,567,955. Inclosed Type

BUILT in different sizes to suit power and speed requirements of paper machines . . . Gives accurate regulation of the draws . . . Operates on separate machine units without vibrations or noises . . . No backlash . . . No gear guards required . . . Materially reduces the breaking of the wet paper on wet end of machine, and snapping of paper in the dry part of machine, thereby increasing production . . . Saves power . . . Low upkeep . . . Equipped with a Moore & White High Speed Friction Clutch, with brass and iron discs, which operates quietly, and is easily adjusted from one point . . . Operates from front side of machine to suit mill conditions . . . All bearings are latest type anti-friction (ball or roller bearings).

THE MOORE & WHITE CO.

Paper Mill Machinery

Office and Works, North Philadelphia Station, P. R. R.

PHILADELPHIA, PA.

Paper Production for September

For the first time this year the total production of paper has fallen below the level of the corresponding month of last year, according to identical mill reports to the American Paper and Pulp Association.

The total production of paper in September was 549,287 tons as compared with 609,421 tons in August and 532,634 tons in July. The nine months' total was 5,197,631 tons as compared with 5,093,410 tons production for the same period in 1927. Shipments during the first nine months of 1928 totaled 5,161,163 tons as compared with 5,054,323 tons in the same period in 1927. Stocks on hand at the end of September totaled 279,003 tons as compared with 261,136 tons at the end of September, 1927.

The total pulp production, according to identical mill reports for September, was 184,173 tons as compared with 199,544 tons in August and 186,615 tons in July. Production was at the rate of about 76 per cent of capacity.

The nine months' total production of pulp was 1,860,601 tons as compared with 1,891,317 tons produced during the same period in 1927, a decrease of about 2 per cent. Stocks on hand at the end of September, 1928, totaled 111,879 tons as compared with 135,546 tons at the end of September, 1927.

COMPARATIVE REPORT OF PAPER OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF SEPTEMBER, 1928

GRADE	Production Tons	Shipments Tons	Stocks on Hand End of Month—Tons
Newsprint	102,852	107,894	35,687
Book	86,815	89,377	54,173
Paperboard	217,163	220,430	47,371
Wrapping	49,459	49,434	54,014
Bag	14,415	14,797	9,032
Writing	27,908	27,915	42,689
Tissue	13,174	14,644	11,870
Hanging	5,358	5,751	4,061
Felts and Building	9,309	9,204	2,300
Other Grades	22,834	22,188	18,328
Total—			
All Grades—September	549,287	561,634	279,525
All Grades—August	609,421	608,528	290,808
Nine Months, 1928	5,197,631	5,161,163	279,003
Nine months, 1927	5,093,410	5,054,323	261,136

COMPARATIVE REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF SEPTEMBER, 1928

GRADE	Production Tons	Used During Month—Tons	Shipped During Month—Tons	Stocks on Hand End of Month—Tons
Ground Wood	70,308	76,531	3,286	86,438
Sulphite News Grade	35,254	32,552	2,559	9,557
Sulphite Bleached	22,704	20,512	2,497	2,995
Sulphite Easy Bleaching	3,397	3,117	271	624
Sulphite Mitscerlich	6,620	5,561	919	1,646
Sulphate Pulp	23,744	17,251	7,000	5,330
Soda Pulp	22,073	13,817	8,377	5,178
Pulp—Other Grades	73	.....	85	111
Total—				
All Grades—September	184,173	169,341	24,994	111,879
All Grades—August	199,544	191,485	22,393	122,041
Nine months, 1928	1,860,601	1,672,654	205,492	111,879
Nine months, 1927	1,891,317	1,740,914	179,339	135,546

Julian Now at Camas

G. M. Julian who has been office manager at West Linn division of the Crown Willamette Paper Co., has been transferred to a similar position at the Camas, Wash., plant. Mr. Julian has been several years at West Linn, and has seen service in California, and in the Portland office of the company also. Mr. H. L. Day, who has been in the West Linn office for several years, has been promoted to the position vacated by Mr. Julian.

Canadian Exports of Pulp and Paper October, 1928

Canadian exports of pulp and paper in October, according to the report issued by the Canadian Pulp and Paper Association, were valued at $18,340,019 which was an increase of $3,580,297 over the previous month and with the exception of March was the highest monthly total for the year to date.

Wood-pulp exports in October were valued at $4,232,557 and exports of paper at $14,107,462 as compared with $3,568,494 and $11,191,228 respectively in September.

Details for various grades of pulp and paper, as compared with October, 1927, are as follows:

	October, 1928		October, 1927	
PULP—	Tons	Dollars	Tons	Dollars
Mechanical	21,136	587,796	22,819	617,027
Sulphite Bleached	22,869	1,748,017	18,675	1,458,778
Sulphite Unbleached	18,477	921,780	12,297	634,585
Sulphate	15,706	914,877	16,247	954,243
Screenings	2,956	60,087	2,359	42,589
	81,144	4,232,557	72,397	3,707,222
PAPER—				
Newsprint	214,228	13,376,872	159,284	10,461,411
Wrapping	1,368	150,545	1,283	140,101
Book (cwts)	4,948	39,892	7,772	54,784
Writing (cwts)	2,738	19,263	851	6,317
All Other	.....	320,890	.....	359,426
	.....	14,107,462	.....	11,022,039

For the first ten months of the year there was an increase in the exports of pulp and paper of $13,113,759 as compared with the ten months of last year, the total for the period being $157,889,459 as against $144,775,700.

Wood-pulp exports this year have declined slightly in value the total for the ten months being $37,655,890 as against $39,038,429 in the corresponding months last year.

Exports of paper showed an appreciable gain over last year the total for ten months being $120,233,569 as compared with $105,737,271 in the ten months 1927, an increase for the current year of $14,496,298.

Pulpwood exports for the first ten months of the year amounted to 1,406,731 cords valued at $14,047,232 as compared with 1,440,629 cords valued at $14,645,341 exported in the corresponding months of 1927.

Fibreboard Making General Improvements

Improvements and consolidations at the various plants operated by Fibreboard Products, Inc., are being carried on all along the coast. The plants of Fibreboard formerly were operated by National Paper Products Co. and The Paraffine Companies, Inc., and the work now going on is to effect savings in operation by eliminating duplication.

Construction of a board mill at the plant recently purchased by Fibreboard Products in Philadelphia is contemplated, but has not been decided upon. The present Fibreboard plant in Philadelphia is a corrugated plant. It was acquired through purchase a few months ago.

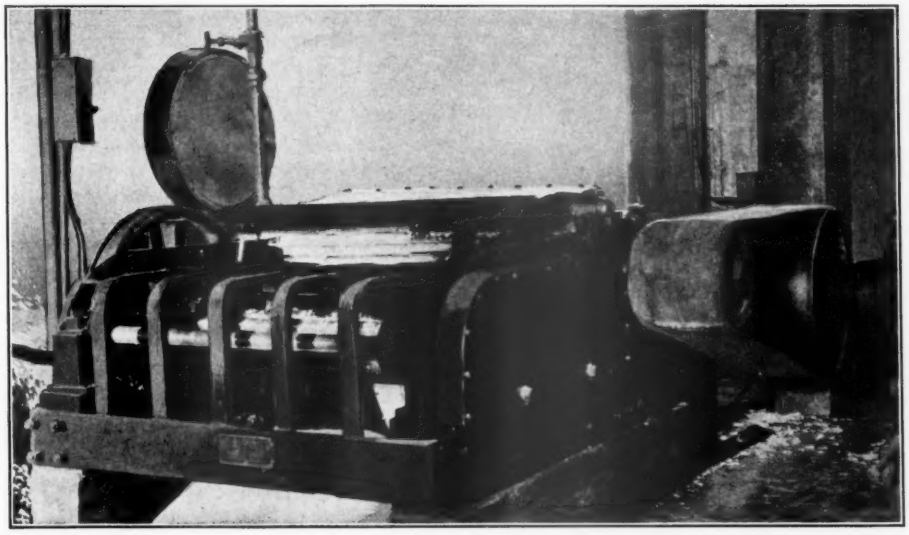
May Resume Work at Astoria Soon

H. O. Schundler, New York, who represents the financial group back of the proposed Northwestern Pulp & Paper Co. mill to be built at Astoria, Ore., was expected to arrive in Portland early this month. The object of his visit, it was said, was to close up final arrangements for building the plant, actual preliminary work on the construction of which was started last May.

It is expected that construction work will be resumed sometime this month, according to B. T. McBain, executive secretary.

RYTHER AND PRINGLE COMPANY CARTHAGE N.Y.

RYTHER SHREDDER



FURNISHES STOCK AT HIGH DENSITY

This unit prepares unbleached sulphite pulp for bleaching. The pulp is furnished in dry sheets, rolls, and soft laps. The equipment operates on an intermittent basis of four dry tons per hour. The unit is driven by a forty horse power motor.

The shredded pulp is discharged by gravity into the boot of an elevator. The elevator discharges the shredded pulp into a screw conveyor where bleaching liquor and water are added to reduce the dryness to the desired point.

FOR CANADA REFER
CANADIAN INGERSOLL-RAND COMPANY, LIMITED
10 PHILLIPS SQUARE, MONTREAL, P. Q.

October Newsprint Production

The News Print Service Bureau's Bulletin No. 130, states that production in Canada during October, 1928, amounted to 216,602 tons and shipments to 221,742 tons. Production in the United States was 121,613 tons and shipments 120,927 tons, making a total United States and Canadian news print production of 338,215 tons and shipments of 342,669 tons. During October, 21,176 tons of news print were made in Newfoundland and 1,353 tons in Mexico, so that the total North American production for the month amounted to 360,744 tons.

The Canadian mills produced 238,945 tons more in the first ten months of 1928 than in 1927, which was an increase of 14 per cent. The United States output was 79,607 tons or 6 per cent less than for the first ten months of 1927. Production in Newfoundland was 24,468 tons or 15 per cent more and in Mexico 1,685 tons more, making a total North American increase of 185,491 tons or 6 per cent over the first ten months of 1927.

During October the Canadian mills operated at 81.1 per cent of rated capacity and the United States mills at 81.2 per cent. Stocks of news print paper at Canadian mills totalled 37,018 tons at the end of October and at United States mills 36,380 tons, making a combined total of 73,398 tons which was equivalent to 4.8 days' average production.

NORTH AMERICAN PRODUCTION

	Canada	United States	Nfind.	Mexico	Total
1928—October	216,602	121,613	21,176	1,353	360,744
1928—10 Months	1,949,165	1,169,215	191,902	13,538	3,323,820
1927—10 Months	1,710,220	1,248,822	167,434	11,853	3,138,329
1926—10 Months	1,549,222	1,401,988	151,102	10,612	3,112,924
1925—10 Months	1,252,901	1,263,098	71,695	10,659	2,598,354
1924—10 Months	1,128,949	1,240,205	54,272	9,580	2,435,006
1923—10 Months	1,058,463	1,246,990	53,546	10,000	2,368,999

Federal Project at Portland Pending

No statement other than that the compnay was still working on its plans was forthcoming from Max Goldberg, president of the Federal Paper and Board Mills, when asked this month regarding the proposed plant to be built in Portland for the manufacture of new paper and board from waste paper.

"As yet we have not located a site for the mill, but will do so soon," Mr. Goldberg said.

Mr. Goldberg indicated that he and his associates have developed a process for using waste paper in making new paper and boxboard which will enable the company to produce 40 tons of products daily.

Duvall Back at Camas

J. W. Duvall, superintendent for the past 19 years of the bag factory department of the Crown Willamette Paper Co's. mill at Camas, Wash., who was recently transferred to the Portland office to do special work in connection with the gummed products division of the Western Waxed Paper Co., has returned to the Camas mill, where he will continue research work along other lines. While in Portland Mr. Duvall maintained his home in Camas. No disclosures were made regarding his present field of investigations.

Murray Down with the "Flu"

J. L. Murray, director of sales promotion and Mr. Wm. Howarth, president of the Everett Pulp & Paper Co., attended a firm meeting in San Francisco the week of Nov. 18 to 24. Mr. Murray arrived just in time to contract the "flu" and spent the week in bed.

PACIFIC COAST IMPORTS—SEPTEMBER, 1928

	Pulpwood		Mechanically Ground Pulp		Bleached Sulphite		Unbleached Sulphite		Unbleached Sulphate	
	Dollars	Cords	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons
To LOS ANGELES—										
From Sweden	.....	.....	10,998	249	.....	....	12,627	250	27,050	500
From Other European	.....	.....	4,298	200	.....	....	.....	.....	.....	.....
To SAN FRANCISCO—										
From Canada	.....	.....	1,439	49	.....	....	.....	.....	13,802	274
From Sweden	.....	.....	.....	.....	.....	....	16,113	350	.....	.....
To WASHINGTON—										
From Canada	15,320	2,041	.....	.....	2,172	31	.....	.....	.....	.....
Totals	15,320	2,041	16,735	498	2,172	31	28,740	600	40,852	774

PACIFIC COAST IMPORTS—SEPTEMBER, 1928

	Newsprint		Printing Papers		Writing		Greaseproof		Wrapping		Tissues	
	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds
To LOS ANGELES—												
From Mexico	4,546	146,642	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Canada	96,162	2,877,247	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Norway	4,172	158,063	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Sweden	36,503	1,380,559	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Central America	1,674	63,037	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
To OREGON—												
From Sweden	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	253	2,295
From Germany	.....	.....	.....	.....	348	4,733	.....	.....	.....	.....	.....	.....
To SAN FRANCISCO—												
From Canada	188,471	5,679,576	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
From Sweden	63,431	2,437,581	2,575	50,565	.....	.....	.....	.....	227	5,232	62	326
From France	.....	.....	.....	.....	3,559	6,587	.....	.....	.....	.....	.....	.....
From Germany	.....	.....	1,448	1,215	1,418	5,933	712	7,901	157	175	.....	.....
From Other European	.....	.....	146	66	.....	.....	.....	.....	.....	.....	.....	.....
From Australia	.....	.....	.....	.....	136	493	.....	.....	.....	.....	.....	.....
From Central America	.....	.....	2,164	418	266	502	.....	.....	.....	.....	808	1,629
From Orient	.....	.....	185	615	147	387	.....	.....	.....	.....	.....	.....
To WASHINGTON—												
From Canada	360,564	10,775,863	110	400	114	455	.....	.....	.....	.....	.....	.....
From Sweden	22,460	840,213	.....	.....	.....	.....	.....	.....	.....	.....	335	2,485
From Germany	.....	.....	.....	.....	.....	.....	.....	.....	177	230	.....	.....
From Australia	.....	.....	.....	.....	218	440	.....	.....	.....	.....	.....	.....
From Orient	.....	.....	.....	.....	31	68	.....	.....	30	87	.....	.....
Totals	777,983	24,358,781	6,628	53,279	6,237	19,598	712	7,901	591	5,724	1,458	6,735

Paper Mill Equipment
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BUFFALO paper mill equipment has been considered a standard of the industry by many of the largest paper mill operators in both United States and Canada for more than 50 years.

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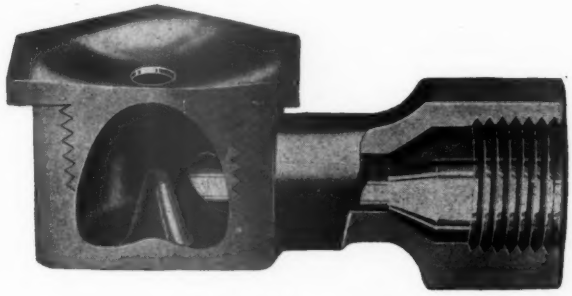
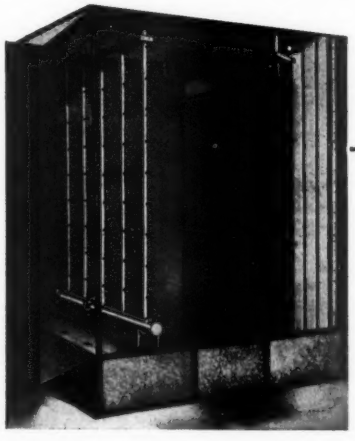


"Buffalo" Spray Nozzle

"Buffalo" Spray Nozzles are unexcelled for keeping down foam bubbles on the wet end of the paper machine. The spray, uniform and soft, are guaranteed against clogging.

"Buffalo" Carrier Air Washers help keep paper clean by washing all particles of dirt from the air that circulates in the mill.



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— 1878 — 1928 —

The U. S. Forest Products Laboratory

(Continued from page 37)

Varying intensity of agitation appears not to affect the reaction rate, and the minimum of agitation after initial mixing of the charge produces the optimum white.

The studies of the effects of the variables of sulphite pulping have been under way for a number of years and the results have been given wide publicity. Until quite recently white spruce had been the only species employed. The basic principles have, however, found considerable commercial application with various species.

The removal of lignin is very slow below 110° C. On the other hand above 110° C. sulphurous acid alone so alters the wood substance that it becomes dark in color and will cook only slowly if at all. Sulphurous acid penetrates more rapidly than bisulphite, leaving the "base" behind. Hence the division of the cooking cycle into two parts, an impregnation period and a pulping period, is a particularly useful conception.

Impregnation Time

The impregnation of the chips must be as nearly complete and as uniform as possible before actual pulping begins. This is accomplished by taking the necessary time before the critical temperature is exceeded. The stronger the sulphurous acid employed, the more rapidly will the bisulphite penetrate. Uniformity of temperature throughout the digester is important as a higher temperature than that recorded (as for example adjacent to the steam inlet) results unfavorably. Slow steaming is usually preferable during the impregnation period.

As regards the pulping period, the rate of removal of lignin doubles for each ten degree centigrade temperature increase. Increasing the acid concentration, increases the rate of pulping somewhat and hastens the removal of lignin relative to the destruction of cellulose, but limitations are imposed almost as soon as the pulping period begins by the safe allowable digester pressure.

Pulping Temperatures

Because of the favorable difference in the rates of removal of lignin and cellulose at lower temperatures as compared with the small differences at higher temperatures, and the relatively small effects of reduced acid concentration, temperature control by means of relief becomes very important. The lowest possible pulping temperature will produce the best yield of pulp for the same lignin removal. The maximum temperature should be as low as is consistent with the production schedules. An increase in temperature, particularly above 140° C. increases the rate of cellulose destruction faster than the rate of lignin removal.

Bisulphite or "combined" must be present at all times for a rapidly-increasing acid condition such as obtains when the base is exhausted results in "burning" if the pulp is impure or in cellulose attack with reduced yields and strength if the pulp is almost delignified. A straight line or "dished" line temperature time curve is best followed during the pulping period for optimum yields, strength and bleachability.

More recently the effect of varying the time and temperature of impregnation on the pulping of eastern hemlock by the sulphite process has been studied. Very briefly expressed, an increase in impregnation time increases yields, decreases screenings, and increases developed bursting strength, whereas an increase in the maximum temperature decreases yields, decreases bleach consumption and also developed bursting strength.

In the field of applied work much has been done toward utilizing specific species. A wide variety of products of commercial quality have been produced from the so-called hardwoods of the East and South. A recent study has developed pulping and bleaching procedures for the manufacture of strong white papers from the pines.

To make more nearly complete the utilization of pulpwood at the mill, two lines of endeavor have been followed. First, the principles of sulphite pulping just discussed have been given mill demonstration with entirely satisfactory results as regards increased yields, decreased screenings and improved uniformity.

Second, a series of mild pulping processes have been evolved which make possible yields of pulp, oven-dry on oven-dry wood, of 75 per cent or more by weight, without material sacrifice of pulp quality for certain uses. It seems a questionable practice that considerable care should be taken to produce pulps of high cellulose content when, for the larger-tonnage, lower-grade uses, they are immediately mixed with large quantities of ground wood, the original wood substance. These investigations resulted first in the development of the semi-kraft, and later the semi-chemical processes. The first is alkaline, the second neutral chemically, and the processes consist essentially in three steps. The chips are first impregnated at high pressure and low temperature and the residual liquor withdrawn for re-use. The saturated chips are next softened under more or less standard pulping conditions by the liquor which they contain. The softened chips are finally washed and mechanically disintegrated to a true pulp ready for the paper mill operations.

Mild Sulphite Process

More recently a series of explanatory digestions based upon a mild sulphite process have been made. The process is referred to as semi-sulphite, being analagous to the other two except as regards removal of the impregnating liquor which if done would require rotatable digesters. The mild pulping action is obtained with the usual constituents of sulphite cooking liquor but so regulating the conditions of temperature, time, concentration and ratio of acid to chips, that the chips are only softened when discharged from the digester and are then mechanically disintegrated to a true pulp. Paper making results obtained indicate that this high yield pulp can be substituted, pound for pound, for sulphite pulp now being used in newsprint and wrapper manufacture without affecting the quality of the finished product for its use.

Study Use Requirements

The yields obtained can be varied at will from 25 to 50 per cent in excess of present mill practice. Considerable savings can be effected in time, steam consumption, chemical consumption, certain items of labor cost and wood cost. Screenings are eliminated. Approximate cost estimates indicate an attractive margin of saving over the additional power and fixed charges incurred by the added step of mechanical disintegration, as for example, by means of rod milling.

In concluding, brief mention of the phases of research in the pulp and paper field which appear to require early attention may not be out of place. The use requirements of standard grades of paper and paper board must be clearly delineated so that the physical and chemical properties actually required by use may be put into the various sheets to an optimum degree. Methods by which these properties may be precisely evaluated are in many cases not known or not sufficiently refined to be of much value in actually designing a sheet for a given use. The effects on the finished sheet of the variables of the paper machine from the

(Turn to page 62)

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The U. S. Forest Products Laboratory

(Continued from page 60)

temperature, consistence, etc., of the stock at the head box through to the pressure, smoothness, temperature, etc. of the calender stacks must be numerically known before definite evidence can be submitted as to the suitability or unsuitability of a given stuff for a definite grade of finished product. Methods by which the physical properties of a suspension of fiber in water ready for the paper machine may be evaluated are required, not by laboriously producing a sheet of hand-made paper but by dealing with the suspension itself.

In carrying through to a successful conclusion, each of these projects must pass three stages, namely, the fundamental laboratory work, next the applied laboratory of semi-commercial scale work and lastly full mill scale demonstration to show practical value. It would seem that the universities should be looked to for a considerable activity in the first stage. The Forest Products Laboratory has and will continue to be very active in the second stage because of its equipment and the experience of its personnel. The mills must furnish the opportunity for the last stage. It would seem that there could be no more ideal arrangement for real technical progress than a close coordination of activities such as outlined above.

The Forest Products Laboratory serves the industry in many ways, principally by the dissemination of the results of its work through publications, presentation of papers, correspondence and personal visits. Members of the industry are particularly welcome at the labroatory. Come at your convenience and stay as long as you desire to personally witness laboratory activities.

The facilities and the experience of the laboratory, under certain conditions, are available to you in the prosecution of your problems through a cooperative agreement authorized by the Congress. The laboratory particularly invites the opportunity to demonstrate its findings on full mill scale under this cooperative agreement, and the establishment of industrial or association fellowships in the pulp and paper field.

Paper Mills Are Big Taxpayers

The importance of a substantial pulp and paper company to a community is clearly shown in the taxes received by Clackamas County, Ore., Monday, November 5. Crown Willamette Paper Co's. check for $91,000 was received at the court house in Oregon City, being the second half of the yearly taxes on the company's holdings in Clackamas County. The Hawley Pulp & Paper Co's. taxes amount to about $100,000. The two paper companys pay almost $300,000 yearly in taxes to Clackamas County.

Lebanon Paper Mill Is Family Affair

The Lebanon, Ore., mill of the Crown Willamette Paper Co., located about 100 miles southeast of Portland, is largely a family affair according to the November issue of "Making Paper", the house organ of Crown Willamette. It appears nine fathers with at least one son also employed in the plant comprise about 27 per cent of entire working force of the mill.

The combined service of the group is given at 194 years, with the best individual standing being given to Mr. Frank Heinrich with 36 years' service to his credit.

Heritage Pleased With Pacific Coast Trip

After completing a tour of investigation of the Pacific Coast looking into the research problems of the region, C. C. Heritage, in charge, Section of Pulp and Paper, U. S. Forest Produts Laboratory, has returned to headquarters at Madison, Wis., well pleased with his trip.

Mr. Heritage altered his original itinerary in order to be present at the first pulp and paper conference, held at the University of Washington in Seattle on October 26. Mr. Heritage writes from Madison:

"I was very happy indeed to be able to be in Seattle on the 26th of last month (October) and was certainly agreeably surprised at the attendance and the interest shown.

"The courtesies extended to me by the pulp and paper men of the West Coast are certainly appreciated, and I am looking forward to further personal contacts both in the West and here in the laboratory."

Portland Rumblings Grow Louder

Echoes of the rumor regarding the proposed 300-ton kraft mill, "to be located near Portland or Vancouver, Washington," grow louder. In brief, it is now a matter of public information that the mill will be built at Vancouver. The plant, however, is to be of 200 tons capacity, instead of 300 tons as originally reported.

As we go to press it was learned that an option on the site was closed late in November, the location of which is being kept secret. Recent announcement that the Northwestern Electric Co. will construct a dam on the North Fork of the Lewis River near Vancouver seems to definitely tie in with development of the kraft mill project. Actual construction of the mill will proceed in the early spring, it is reported.

A clear cut announcement is expected to be made late this month by a representative of the company who is in Portland, but whose name was not divulged. It was also learned that manufacturers of mill machinery were in Portland early this month conferring with the engineer regarding plans for the new industry.

Backing the project are a group of New York bankers who have been working quietly for the past three months. Their names were not divulged.

New Rainier Pulp Issue All Sold

The Rainier Pulp & Paper Co., at Shelton, Wash., is effecting a financial reorganization by offering 100,000 shares of Class A common stock, offered at $33.25 per share. The issue was all sold before announcement. Upon completion of details of the present issue the company will have a capitalization as follows: bonds, none authorized or outstanding; Class A stock (no par value), 100,000 shares authorized and outstanding; Class B stock (no par value), 123,000 shares authorized and outstanding. Concurrent with the refinancing a statement of earnings was issued showing an annual rate of $649,620.91, equal to $6.49 per share on the Class A stock. The Rainier mill has a daily capacity of 115 tons of bleached sulphite pulp. It began production in July, 1927.

Sweet Looks Over Portland

George Sweet, secretary-treasurer of the Pacific Strawpaper & Board Co., Longview, Wash., was a Portland business visitor last month.

The Pioneer Authority of the Western Logging and Lumber Manufacturing Industry

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WEST COAST LUMBERMAN

SEATTLE, WASHINGTON

How's Business?

"The Paper Industry Reflects the General Prosperity"

Thumbnail Sketches of the Pacific Coast's Principal Resources and How They Are Faring

Wheat in the North Pacific States

FROM a first shipment of a few barrels to an Alaskan Russian fur trading post in 1836 to an industry that yields $125,000,000 annually is a brief summary of wheat in the Pacific Northwest states and what this crop means to the entire Pacific Coast.

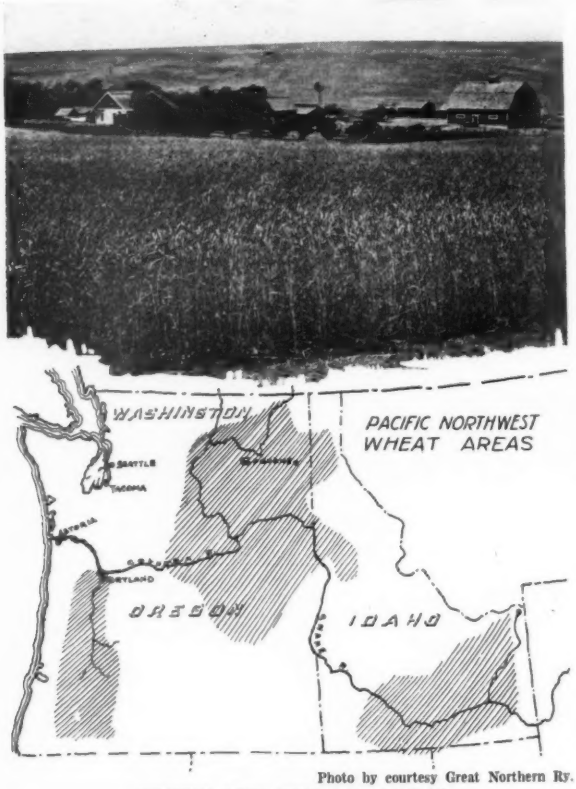


Photo by courtesy Great Northern Ry.

WHERE THE WHEAT GROWS

The principle wheat areas in the Pacific Northwest States are: the Palouse district in Eastern Washington and Northwestern Idaho with the Columbia Basin of Oregon and Washington; the Snake River valley in Southern Idaho, and the Willamette River valley in Oregon.

The bulk of Pacific Coast wheat is raised in four large areas in the states of Washington, Oregon and Idaho, where, according to Department of Agriculture statistics, 4,422,000 acres of land are cultivated for wheat. This total is being steadily augmented by new irrigation projects.

Wheat production reached a high peak in 1927 when a bumper crop of 113,645,000 bushels was delivered at the markets. The value was estimated at $120,465,000. With only 40 per cent of the 1928 grain delivered to distribution points present year crop estimates exceed 100,000,000 bushels.

When it is pointed out that only 20,000,000 bushels are kept for local consumption and the remainder is shipped to foreign and domestic markets either as flour or in bulk wheat shipments, the value of the crop in bringing new wealth annually to the Coast is easily recognized. During the past 25 years, 38 4/10 per cent of the total crop has been sent to foreign markets, principally to north Europe, South America, the Orient and the Levant.

The Coast's three great wheat shipping ports in the United States are Astoria, Portland and Seattle. Each of these ports has bulk grain elevators for the storing of more than 1,000,000 bushels of grain, not to mention big private elevators.

Although wheat is the principal grain crop other grains play an important part in the development of the Coast. The average annual yield of barley is 7,000,000 bushels; of oats, 25,000,000 bushels; of rye, 1,000,000 bushels; and corn, which at present yields 2,000,000 bushels is making substantial increases each year.

A second great industry, closely allied with and entirely dependent upon grain production, is the milling industry. The Coast grinds practically all its own flour. Figures given above pertaining to grain crop values do not include the increased value of the manufactured product and, as approximately one-fourth of the exported grain is in the form of flour, additional dollars are brought to the Coast.

What part has wheat played in the progress and development of the Pacific Coast? Briefly this: Every wheat rancher is a resident property owner and a fairly prosperous one and so practically every dollar that comes into the great wheat growing areas stays on the Pacific Coast. The railroads freight the wheat west from the fields to western terminals, thus requiring additional men, additional rolling stock and additional yard and shop equipment. The great amount of export brings increased ocean commerce to the Coast cities, and aside from manufacture arising from milling a considerable business in farm machinery manufacture has also grown.

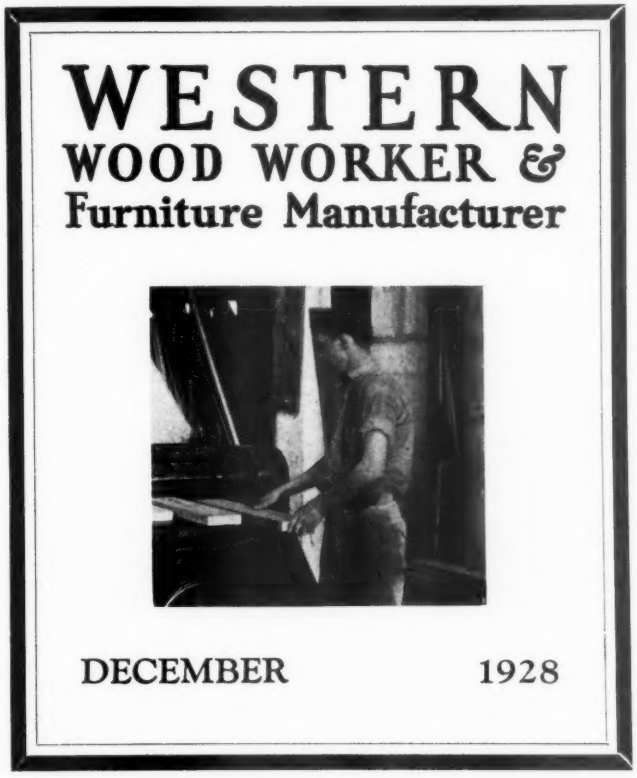
Paper Bags For Cement

The Pacific Coast Cement Co., is now constructing a a huge cement plant in the industrial districts of Seattle and will begin production next month. The new plant will add a considerable payroll to the Northwest and will draw heavily upon Pacific Coast products. It will require each year, among other things, 35 ship loads of lime rock from the Alaska coast, 2100 carloads of Washington coal, 200 scow loads of clay, and 2000 cars of gypsum. The plant will turn out about 5000 cars of cement annually.

As for bags to hold the product the company has recently placed an order for a carload of paper bags with the Bates Valve Bag Co. A stipulation has been made in the purchase that the pulp for the bags is to be a Washington product and the facts are that the pulp will be made at the new 200-ton sulphate mill of the National Paper Products Co. at Port Townsend, Wash.

This bit of news is interesting as it is known that the Bates Valve Bag Co. has for some time had under consideration the construction of a multi-wall paper bag factory somewhere in the Northwest, the plant to be similar in size and principle as its present plant at Los Angeles. It has been rumored that the plant would be located at Port Townsend, but this point has not been confirmed.

As an indication of the demand of bags created by the cement industry it is estimated that the annual cement consumption in the State of Washington is approximately 12,000,000 bags.



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Annual Paper Production Census Authorized

The efforts of the American Paper and Pulp Association to obtain a short annual census on paper production have been successful and the Director of the Bureau of the Census, Mr. W. M. Steuart, announces that the canvass will begin shortly after January 1, 1929.

The American Paper and Pulp Association cooperates closely with the Bureau of the Census in effort to help improve the statistics of the paper industry, and this authorization for an annual census is a forward step which will be of great value to the paper industry.

The annual census form is extremely simple and merely calls for the 1928 production in tons and the machine capacity of the plant. The data on paper machines is becoming more important than ever because of the present tendency of mills to switch to other grades. The annual census will show the increases or decreases of capacity, as well as production, in the various grades of paper and will enable manufacturers who contemplate changing grades to know how much capacity exists in each grade, from year to year, and whether or not the excess of capacity in any grade is reaching a point where it will tend to create chaotic conditions in any market.

The form for the annual census was developed by the Statistical Department of the American Paper and Pulp Association in conformity with its policy, as the central, national organization of the paper industry, to promote closer cooperation with the government bureaus and to offer all possible assistance so that data compiled by the government may be more timely and of greater value to the paper industry.

State Gets Share of Federal Timber Sales

The federal government sold $303,000 of federal timber to operators of mills and pulp firms during the fiscal year of 1928, Congressman Albert Johnson has notified Hoquiam lumbermen. The Olympic National forest supplied half of this timber and counties included within its boundaries will receive the lion's share of the state proceeds. Twenty-five per cent of the funds are divided among the counties included in the national forests. The amount due this state for distribution among the counties is $144,002.97 and four counties having lands in the Olympic National forest will be given $74,387.36.

Amounts to be paid the state from other national forests in Washington are tabulated as follows:

Chelan, $2,762.51; Columbia, $2,843.02; Colville, $6,865.12; Kanisku, $9,990.80; Olympic, $74,387.36; Rainier, $14,815.73; Snoqualmie, $19,835.53; Umatilla, $1,948.33; Wenatchee, $5,374.74. Total for Washington, $144,002.97.

New Trail Opened Into Olympic Forest

Completion of a new forest trail running from the east end of Lake Quinault up Ewell Canyon and to the west fork of the Humptulips river via Wooded mountain has been effected and the trail opened by federal forestry men, according to District Ranger J. W. Fulton. The main purpose of the new trail is to give increased forest fire protection to the district east of the lake in Grays Harbor county. This area includes a large and varied stand of timber, much of which may eventually be used by pulp and paper mills. In this stand is a stand of amabilis fir near the route of the trail. This fir is notable for its smooth bark and light color. While of little value for lumber its long fibre makes it especially desired as pulp wood. Large stands of Western hemlock are also encountered along the trail.

Willapa Awards Equipment Contract

An $800,000 contract for pulp machinery for the proposed Willapa Pulp & Paper Mills was awarded P. B. Sadtler, president of the Swenson Evaporator Co., while on his recent trip to Portland, according to an announcement by Willapa officials.

K. A. Forrest, manager of the pulp and paper division of the Swenson concern, who accompanied Mr. Sadtler, is remaining over to confer with promoters of the new industry regarding installation plans. Incidentally, an unverified rumor persists that Mr. Forrest, formerly sulphate superintendent of the Camas, Wash., mill of the Crown Willamette Paper Co., is to serve in a similar capacity at the Willapa mills.

Although plans for the proposed plant have received numerous setbacks for some time, company officials now declare that all obstacles have been overcome, and that actual construction will be started shortly. A change in plans and specifications to double the capacity of the mill is advanced as one of the primary reasons for the delay.

L. A. DeGuere, engineer for the company, who is in the East, is expected to return to the Coast shortly. The proposed industry is to be located on the site of the Columbia Box Co., between Raymond and South Bend, Wash., in the Willapa Harbor district.

Pulp Displayed in Harbor Exhibition

Hundreds of Grays Harbor people had their first view of wood pulp during the wood promotion week display held in Hoquiam, Wash., November 13-17. The Grays Harbor Pulp & Paper Co. had a display in the Ellsworth building where wood-products exhibition was held.

The wood promotion week was sponsored by wood production people and employes to educate the people of the Grays Harbor section to the uses of wood and to "make Grays Harbor wood minded."

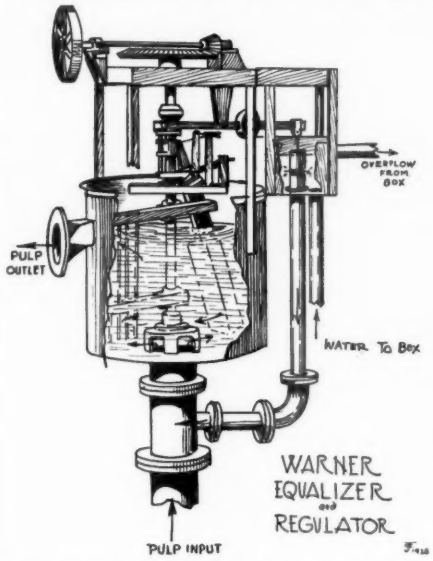
A permanent organization of wood promotion boosters has been formed since the wood week ceremony on the Harbor. Each company working with wood in the district will be entitled to three delegates to the central organization and this group will select sub-committees, elect steering committees and look after all matters dealing with wood promotion.

Three main branches of endeavor were decided on: Retail contact work, which will look after retailed products and seek uses of wooden boxes by shippers; efforts to secure more utilization of wood instead of building composition products; making of people of the community conscious of the vast industry built on the use of wood. The Grays Harbor Pulp & Paper Co. will have delegates to the central organization.

Eibel Leaves Rhinelander for California

William Eibel has severed his connections with the Rhinelander Paper Co., at Rhinelander, Wis., and is now in California. He left Wisconsin about the middle of November. Mr. Eibel had been with the Rhinelander company for many years, and for the past three years he was general manager and treasurer. He is considered an expert on glassine and greaseproof papers. A few months ago he made a tour of the Coast and shortly after that time it was announced that he was to be a director on the board of the Fir-Tex Insulating Board Co., which proposes to build an insulating board mill at St. Helens, Ore. Other rumors that he was to be connected with another organization have not been confirmed.

HERE'S ANOTHER ONE ---



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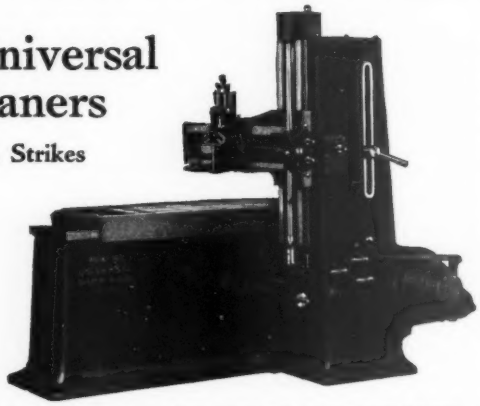


These machines fill the gap between the shaper and planer. They handle in a most profitable way the jobs too large for a shaper and too small for the planer, with the speed and convenience of the shaper yet accuracy and set up of a planer. The openside feature gives them a great range in capacity with plenty of table surface to anchor the awkward work. They are built with Timken Bearings, Forced and Shower lubrication, Twin Disc Clutch and Brake, Link Belt Silent Chain motor drives, Alloy Steel treated gears, etc.

Let Us Tell You All About Them

ONLY ACCURATE TOOLS PRODUCE ACCURATE WORK—
CONVENIENT TOOLS INCREASE PRODUCTION

We also build the

ROCKORD HY-SERVICE SHAPER and ROCKORD ECONOMY LATHE

ROCKFORD MACHINE TOOL CO.

ROCKFORD, ILLINOIS

New Waxed Paper Moving Well

That the new waxed kraft paper, recently perfected by the Crown Willamette Co., plant at Camas, Washington, and the Western Waxed Paper Co., Portland, is being well received by the building trade is indicated by the prediction of a Portland distributor that he expects to sell 60,000 rolls when the building program starts next spring.

"We have been selling the new product a litle more than a month," he said. "The demand is already reaching the point where building material dealers in the Northwest despair of selling their old stocks of competitive building paper. The paper is the best we have ever seen for the purpose for which it is intended."

Experiments looking to the development of the paper were started six months ago, and, while the process and treatment are secret, it was learned that a special kraft is being used and that the product is treated with mineral oils and wax. The paper is guaranteed wind, rain, and vermin proof. It is also said to be clean, tough, light and easy to handle. Its ease of handling makes it especially desirable in laying hardwood floors, as it does not "pinch-up" or "buckle." One enthusiastic user reports that the use of the product saved enough in labor to pay for the paper used. The tensile strength is declared to be superior to that of any building paper made. The paper does not adhere to the building, nor is it affected by contraction, expansion, or vibration. Two weights are being offered—medium and heavy—the former weighing 14 pounds, the latter 19 pounds.

The paper is adaptable as a temporary cover for lumber, cement, etc., after which it may be used for flooring or sheathing. A government test is being sought to determine its durability and its value as a fuel saver when used in building.

In introducing it to the trade the building material house is using direct-by-mail letters and personal calls. Announcement of building permits taken out are also being followed up. Efforts on the part of salesmen resulted in the sale of 600 rolls the first day out. Incidentally, the rolls are a yard wide and contain 167 lineal feet, giving one roll a coverage of 500 square feet. While the paper is being sold at a closer margin than competitive papers, it is expected that the volume will offset the profit sacrificed in introduction.

E. F. Bogren, manager of the Western Waxed Paper Co., stated that additional equipment is being installed for treating the paper. In its final treatment the product is understood to be fed through a hot solution of the oils and wax and wound on rolls which are kept at a low temperature through a special refrigeration process.

Grays Harbor Projects Inactive

No further action has been taken toward construction of pulp mills by either the West Lumber & Pulp Co. or the Pacific States Pulp & Paper Co., firms formed in Aberdeen, Wash., ostensibly to build pulp mills there. Both have contracted with that city for industrial water but under present conditions it appears the contracts have doubtful value.

The West firm still is attempting to finance a mill, it is understood. The West sawmill is being operated now by the Schafer Brothers company of Montesano, which firm secured it on a lease after it had been sold at sheriff's sale. Some took this to mean that the Schafer company was planning on entering the pulp business but that company has made no such move lately. The West company has a 30-acre site, cleared and filled, on the Chehalis river near Junction City.

Job No. 5391—Another example (one of 6129 such cases on file) of the savings on heaters which Skinner Brothers are able to make for plant owners. Almost always in paper mill installations these savings run into thousands of dollars.

$6,000 saved on air-conditioning equipment for this 140-ton mill

First-cost figures on other systems were 100% higher than for Skinner Brothers Air Heaters. Any mill owner using the Skinner method of moisture-control and heating will tell you that there is no need to spend a lot of extra money for complicated equipment when the problem can be solved so simply and inexpensively by the use of the Skinner Air Heater.

When Skinner Air Heaters are used, very little adjunct equipment is necessary.

No cumbersome ducts or hoods to buy, or to replace when they rust out.

There are Skinner installations in paper mills all over the country and on practically every one the saving in first cost over other systems has been *at least one-half*.

And Skinner Brothers guarantee to meet conditions as specified or take back the heaters.

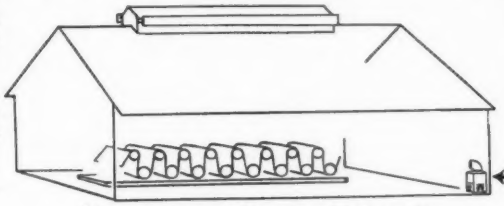


Diagram shows relative size of Skinner Air Heater compared to average machine room.

Ask a Skinner Man to show how Skinner Air Heaters can be adapted to *your* mill.

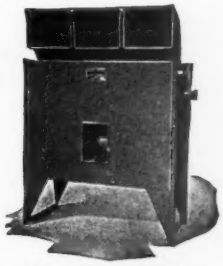
Skinner Brothers "Baetz Patent" Air Heater

Skinner Bros. Air Heaters

SKINNER BROS. MFG. CO., INC., 1450 S. VANDEVENTER, ST. LOUIS, MO.
Seattle Office, Railway Exchange Bldg.—Offices in 30 principal cities.

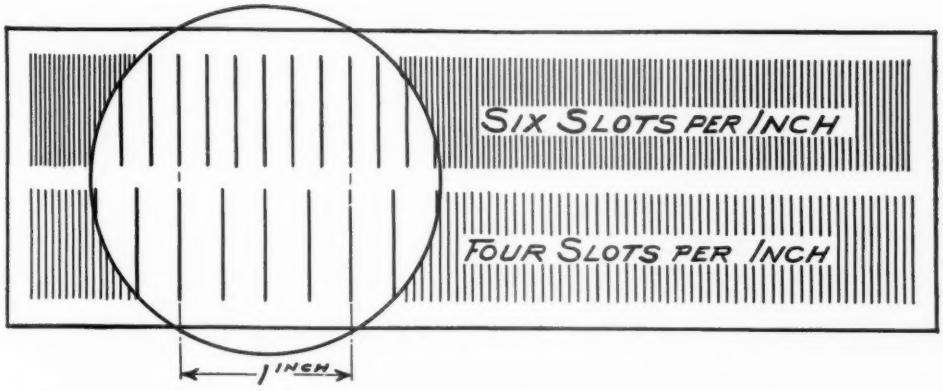
Mill Owners:
Can you afford to overlook these 2 facts?

(1) Figures on file prove mill owners save *big* money on Skinner Heaters in almost every case.
(2) In 34 years, with results guaranteed, no Skinner Heater ever came back.



Type "U" Air Heater

The Hardy Six Slotted Screen Plate



The most efficient flat plate on the market. Its advantages of economy and capacity are equally effective on both pulp and paper.

William A. Hardy & Sons Co.,
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Sales Agents: **PACIFIC COAST SUPPLY CO.**
Lewis Bldg., Portland, Ore. L. C. Smith Bldg., Seattle, Wash. Welch Bldg. San Francisco, Cal.

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Operated by Chemical Pulp Mills
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by

THE STEBBINS ENGINEERING & MFG. CO.

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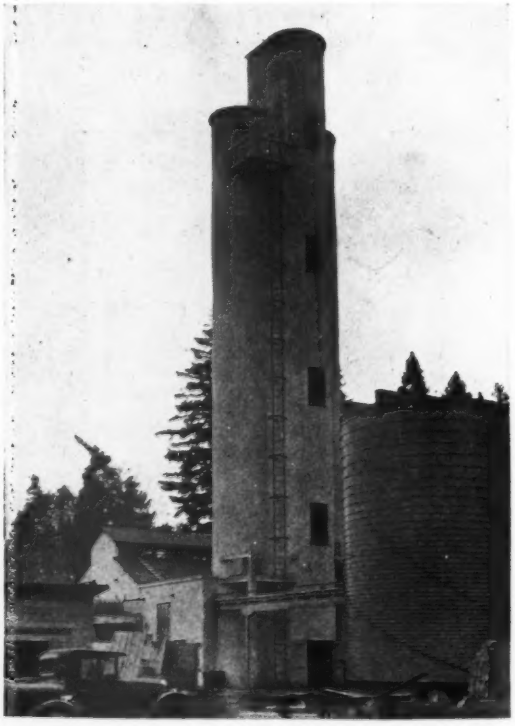

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The base and column is cast in one piece making a very solid, sturdy construction.

The main operating mechanisms are fully inclosed inside the column insuring protection against emery and dust. Select gears run in a bath of oil.

Thousands are in use in some of the best mills in the United States.

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"ROGERS" Single and Double Press WET MACHINES
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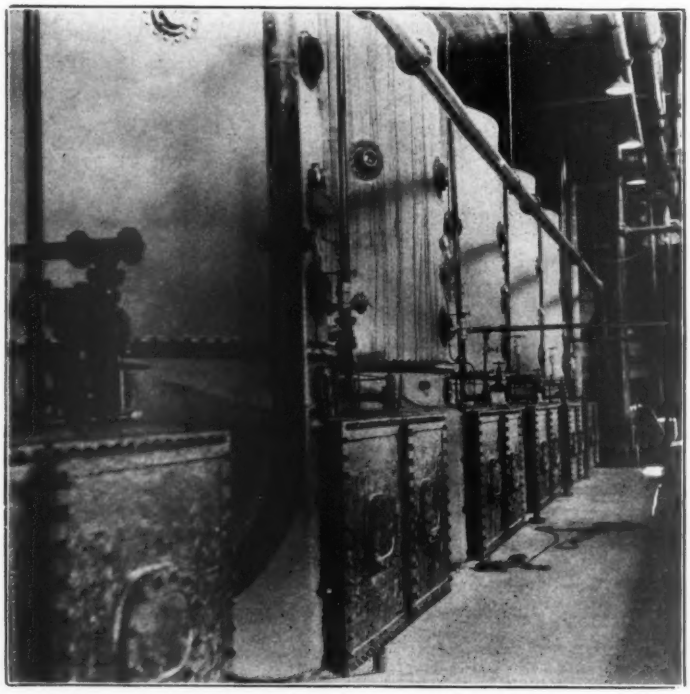

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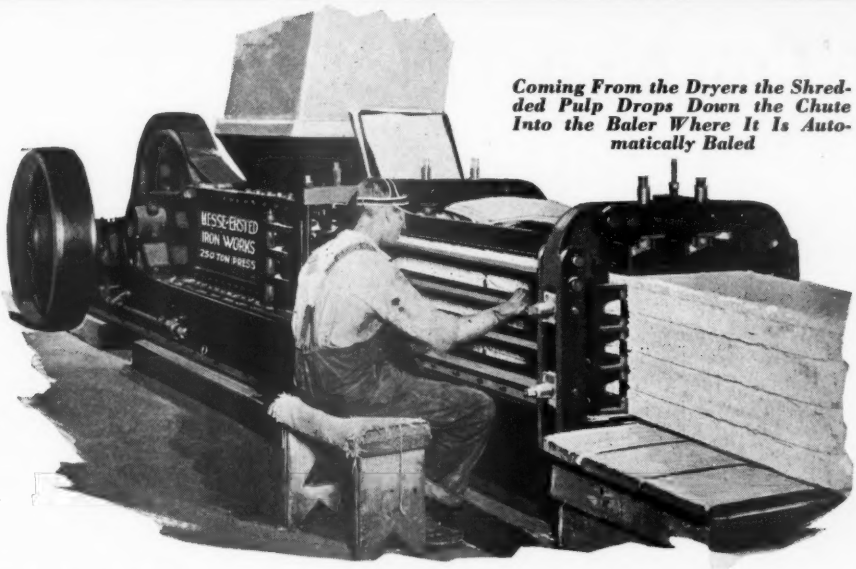

Coming From the Dryers the Shredded Pulp Drops Down the Chute Into the Baler Where It Is Automatically Baled

with the Fidalgo System of Shredding and Drying

NOTICE *This System is covered by process Patents. Beware of parties offering the system and attempting to infringe*

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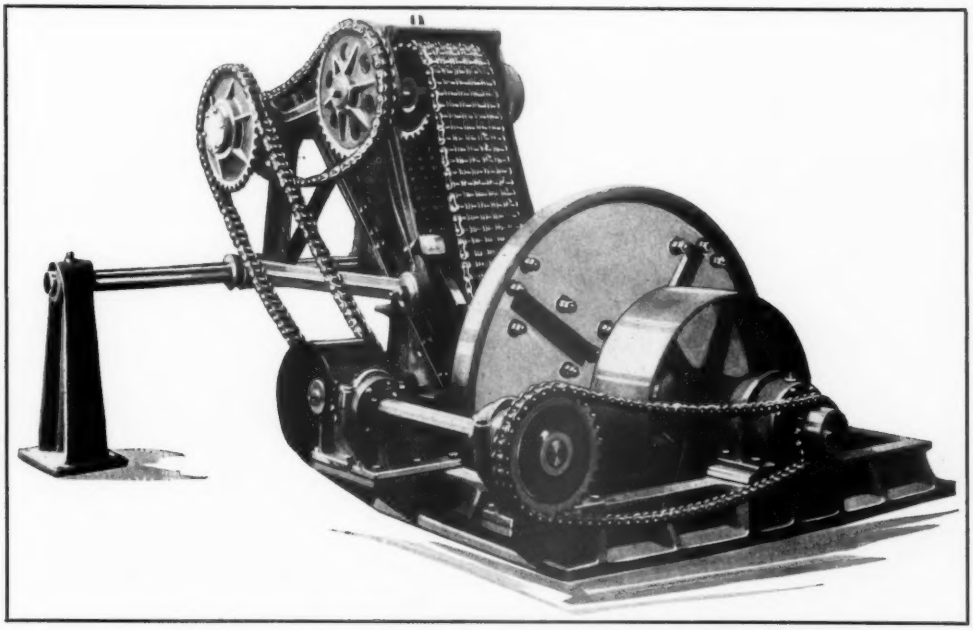

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THE NORTH ROD MILL

A Rod Mill especially made for paper and pulp mill work.

On pulp mill screenings and knots it pays its total cost every month. For paper mill work it does much better work than a beater at one-third the horse power and no attendant. Everything automatic and fool-proof. Pulp fed into drum by positive feed so that same quality is made at all times. ***Save-Alls—Water Filters—Stone Bed Plates, etc.***

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Use

Copper Queen Rubber Transmission Belting

(red friction surface)

Use Copper Queen—It can't be beat for reducing the loss of power between pulleys because its red friction surface clings to the pulleys without slipage.

Use Copper Queen—It can't be beat for long steady service because it is built of a special duck possessing great strength and flexibility.

Use Copper Queen—It can't be beat for meeting the tug and strain of heavy drives because stamina is built into every inch of it.

Use Copper Queen—It can't be beat for reducing the wear and tear on hangers and shafting because it transmits the maximum H. P. with minimum tightness.

Buy Copper Queen by the roll and you will have less loss of power, less loss of production through shut-downs and lowered operating costs during 1929.

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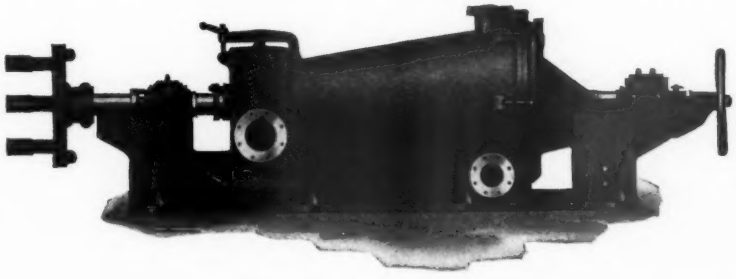
The Hercules Jordan Sustains a New Standard of Efficiency



Maximum production over a longer period of uninterrupted service with less consumption of power, and little attention.

THE Hercules Jordan has so many distinctive advantages, it will pay to wire for our illustrated folder which tells the story in detail. Frictionless Timken Tapered Roller Bearings are a standard equipment. This gives assurance of a permanently centered plug and uniform stock throughout the life of Plug & Shell Liners. Longer life and quicker change features are added points of economy.

Our Engineering Department is at your service

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Factory and General Offices: LANCASTER, OHIO

SULPHUR *for* SULPHITE

4000 to 5000 Tons
Daily Production

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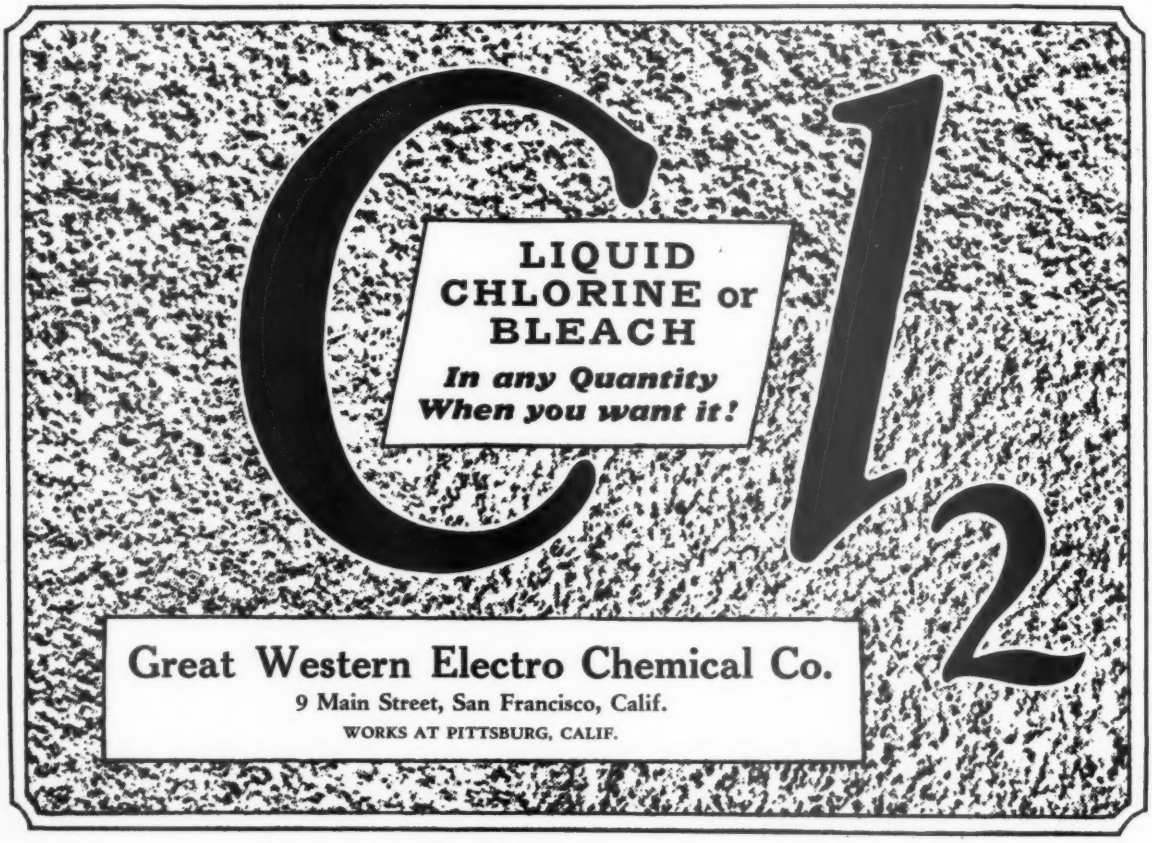
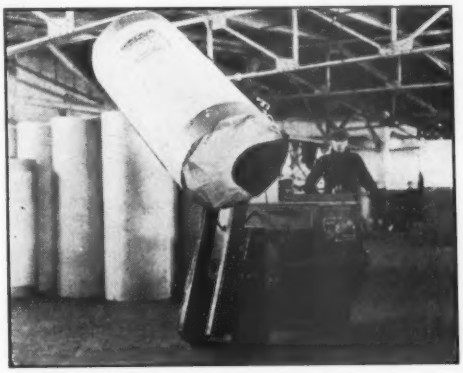


Little Journeys Into Cost Savings

If It's Paper You Want Moved—



Whether its newsprint or jumbo rolls to be handled in pasting, shipping, warehouse or freight car—whether its sulphite, paperboard or wall-board—Elwell-Parker does it—and does it at a saving.

As a few users have said, "Elwell-Parkers helped us put six men on better paying work in addition to moving stock much faster." "In our plant Elwell-Parkers load 81 tons in 8 hours, the hauling distance from finishing room to cars being 300 feet."

Elwell-Parker builds Tructors suitable for all kinds of work: elevating and tiering; standard platform; cranes and fork types; and dump bodies for loose materials or refuse.

Our engineers will gladly advise with you on the best type of Tructor for your particular job.

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Made by

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Regardless of present system or scheme

Condensate leaving paper machine is accurately weighed, guaranteed within ½ of 1%. It is then delivered to power house at same temperature of steam in dryers without any use of cooling water.

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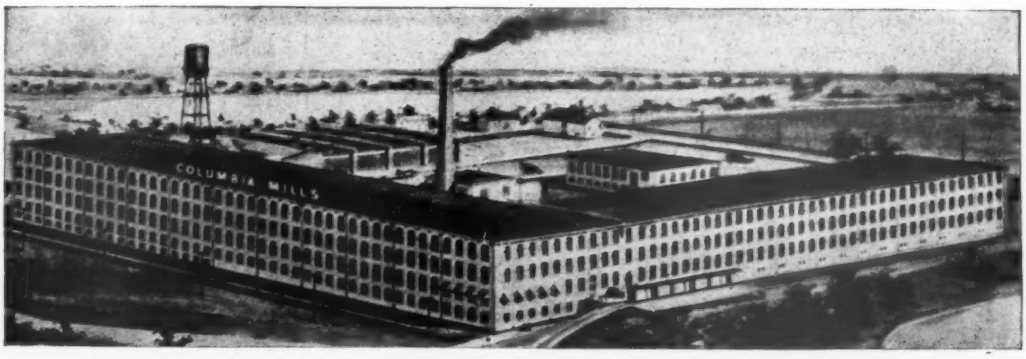
"Mt. Vernon" Standard Weave
Medium—Standard—Extra Heavy
Widths "60 to 164"

"Richland" Triplex Weave
Widths 68" to 210"

Felts within above ranges made in lengths as required.



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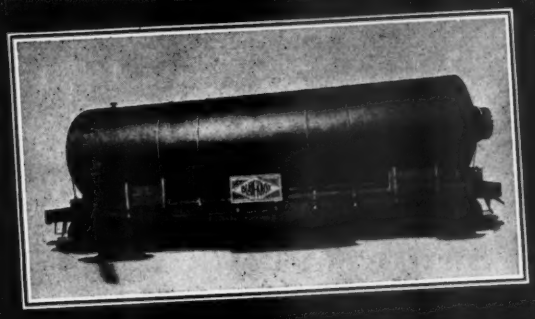

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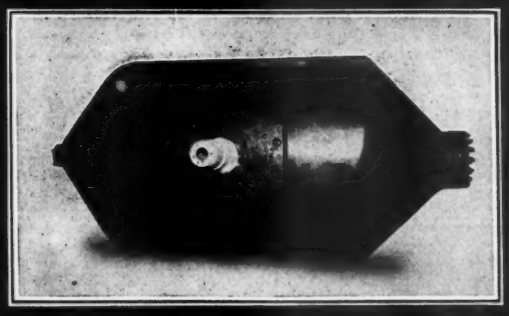
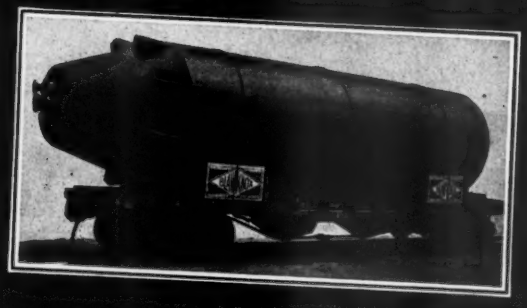


LEAKLESS



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PAPERS of this class are successfully colored with selected types of the National Erie and Niagara group of Dyes. Where special brilliancy is desired, National Acid Dyes are recommended, either as self shades or in combination with Direct Dyes.

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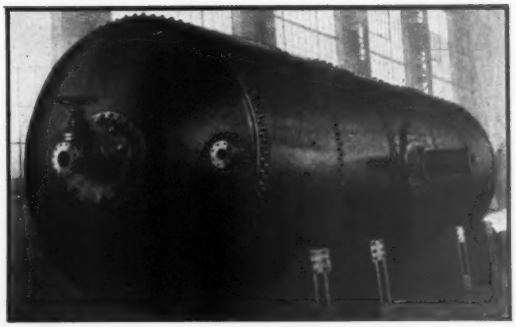

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S creens 80 to 100 Tons Ground Wood per Day.
C onsistency—Screened Stock 0.8% to 1% Air-Dry.
R equires only 25 to 30 Horse Power.
E mploys only One-Half Usual Number of Deckers.
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A Pulp Screen Which Is a Worthy Companion to
The Trimbey Automatic Consistency Regulator, and the Trimbey and Tibbitts Proportioning and Metering System.

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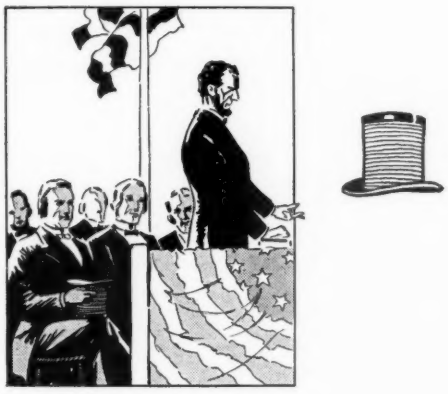
Made in Canada? Yes.

When Douglas held Lincoln's Hat



IT was a gracious act when Douglas reached over and held Lincoln's hat while he was delivering his first inaugural speech in Washington in 1861.

It was a day when History was in the making.

Three years before this time history was also in the making in the paper industry, when Asa Shuler and J. W. Benninghofen got together and formed a partnership for the manufacture of paper making felts.

That partnership still exists among the descendants of these two men. And they are making better felts than did those pioneers in 1858. It would be strange indeed if they did not, with these three generations of experience to help them.

For it is this experience that dictates the entire process of making these felts which combine strength with great water removing qualities; that save in steam and coal costs; that wear longer and produce better paper with less down time for washing; that make money for the wise manufacturer who uses them. But the test of a Hamilton Felt is in your mill on your machines. For purposes of comparison take your hardest one—put on it a Hamilton Felt, and give it the most grueling test of use and performance you think a felt ought to have. Don't spare it. You'll come back and want these better felts on all your equipment.

Ask the Hamilton Felt man, who is a practical paper maker as well as a felt expert the next time he calls. Tell him your problem. He'll have a felt for you that will meet it exactly. Most likely he calls on you regularly, or you can write to us direct.

Shuler & Benninghofen
The Miami Woolen Mills

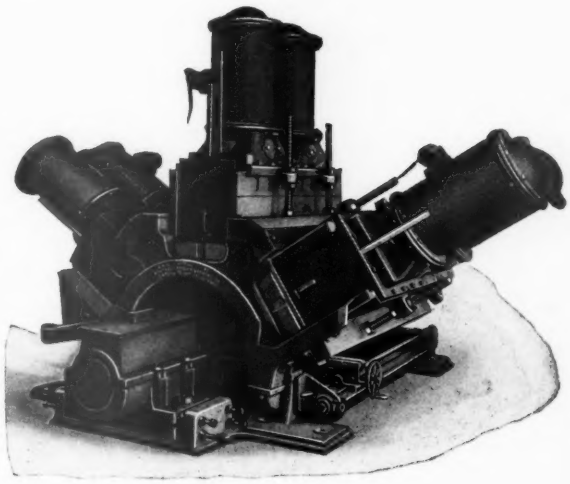
Established 1858 **Hamilton, Ohio**

Hamilton Felts

International Grinders

For Four Foot Wood

Curtis Patent



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Hitherto stone size 54″x54″.
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Full particulars upon request.

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- Ball Valves.

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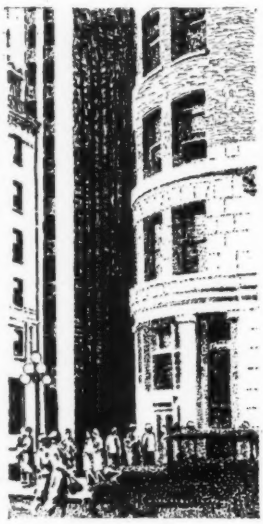

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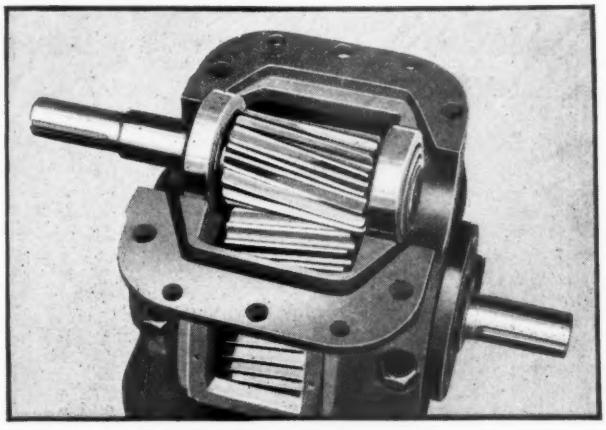

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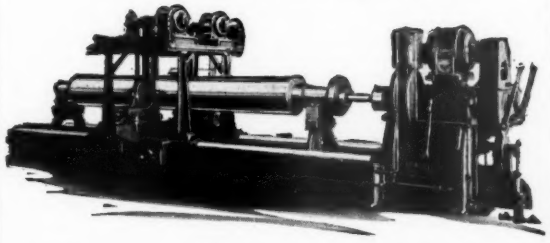

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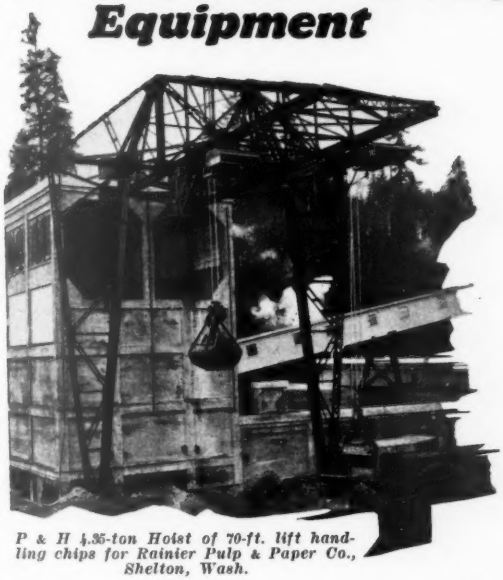

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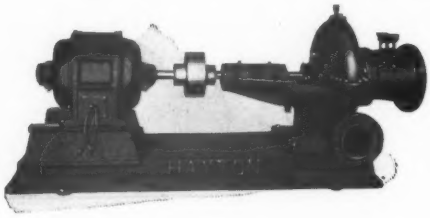

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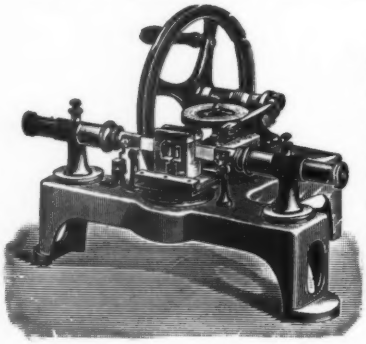

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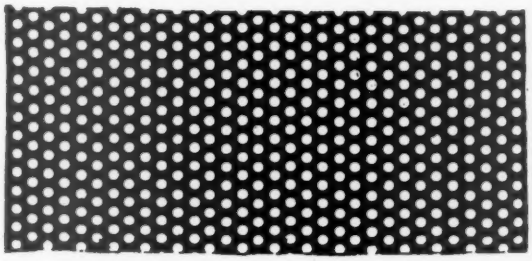

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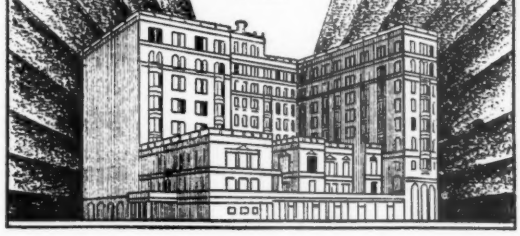

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Presents market reports and statistics in Swedish and English for the Timber, Wood Pulp and Paper Trades in Sweden, Norway and Finland.

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Photographic
SURVEYS

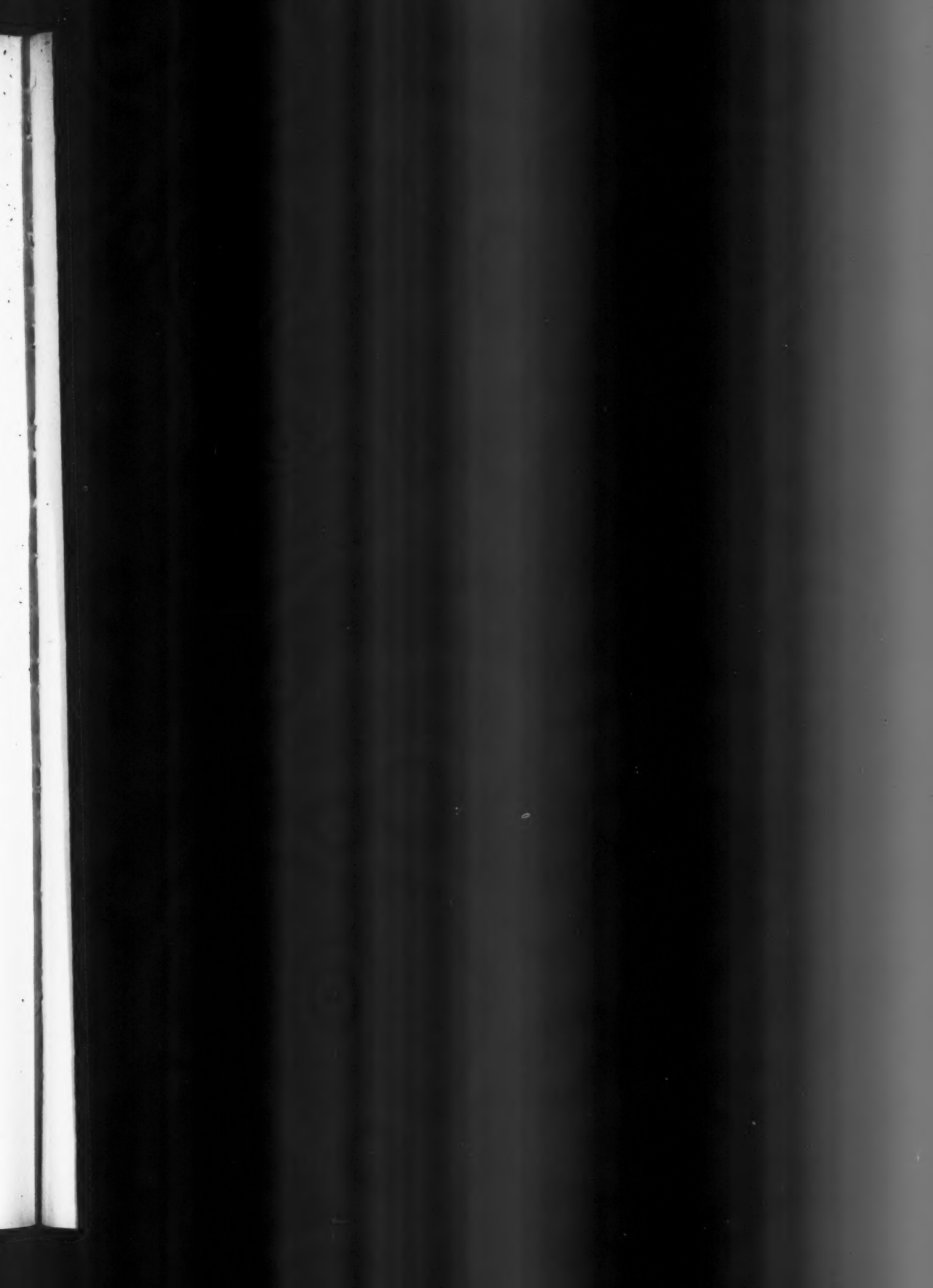
Are especially useful in preliminary work, showing Sites and Stands of Timber, Etc. Write us.

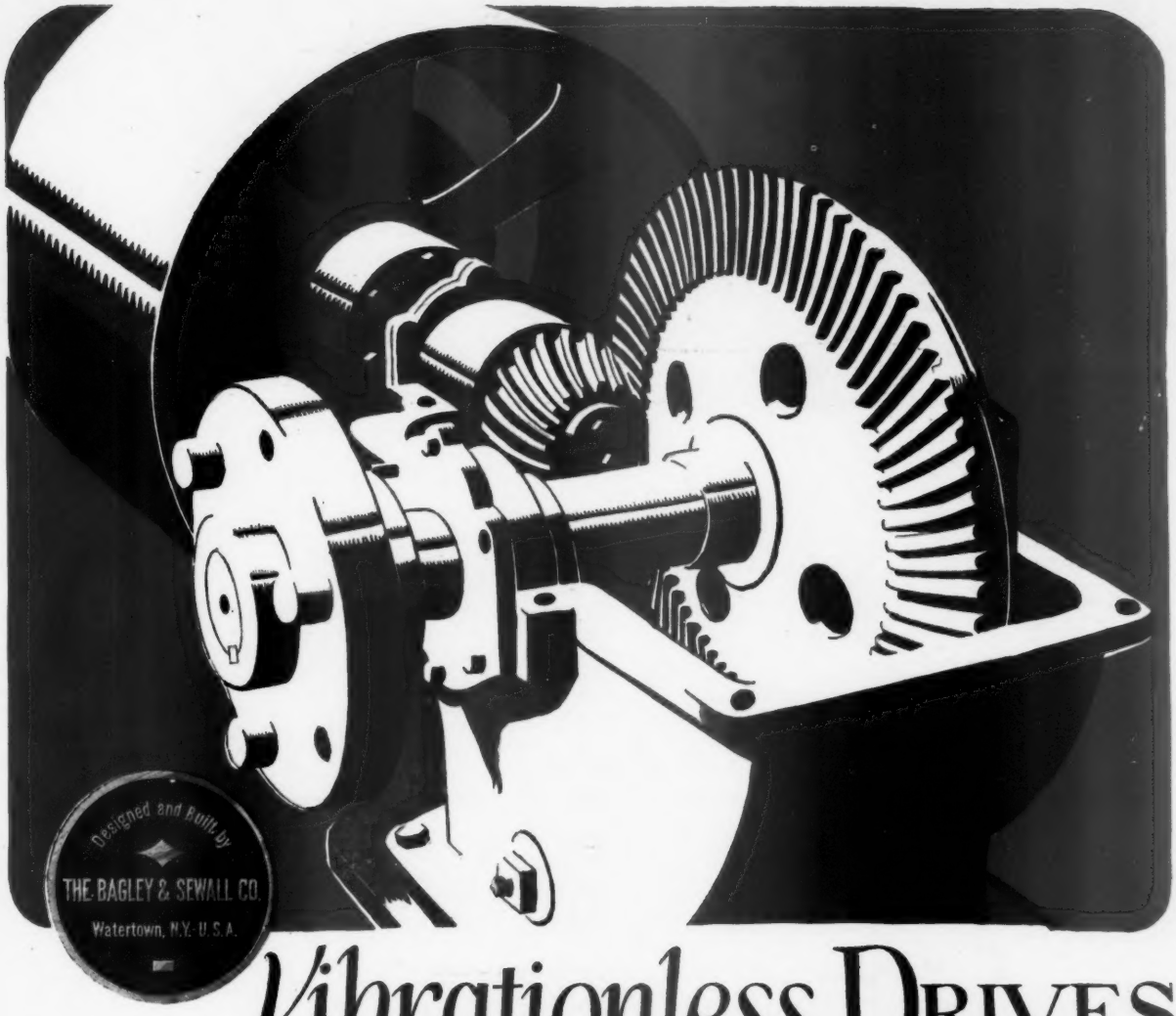
Photo Maps to Scale, Views

BRUBAKER AERIAL SURVEYS

407 Oregon Building

Broadway 5256 :-: Portland, Oregon





Vibrationless DRIVES

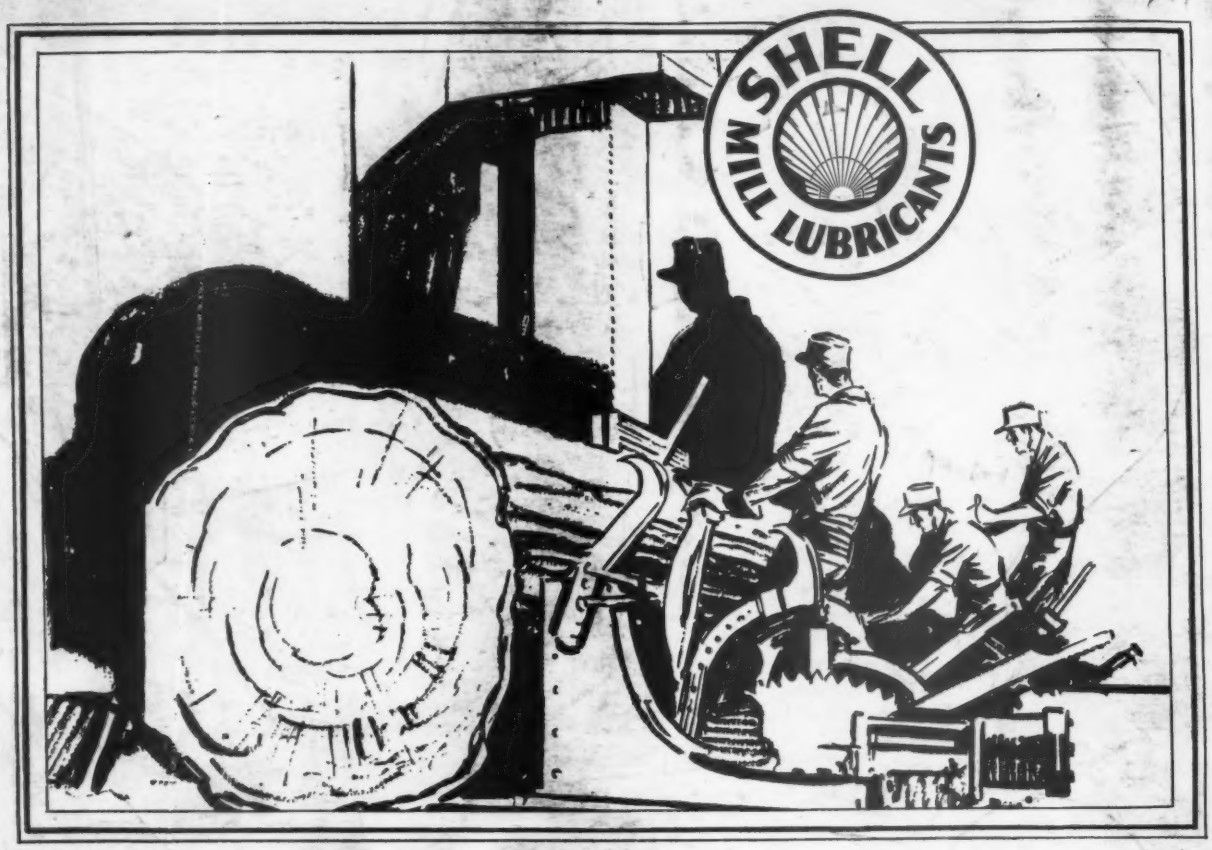
that need no dentistry —

Swan-smooth in performance . . . . None of the roll-wearing chatter and jump of replaced teeth . . . . for these all-metal, spiral cut gears need no replacement . . . . continuously bathed in oil for added life and smoothness . . . . Clutches that provide velvety starting—magnetic—electric push button type—or multiple disc with large friction surface. Roller and ball bearings. Made in four sizes that minimize space. . . . . Let us replace your present paper machine drives, completely or in units.

Illustrated Bulletin on Request

The Bagley & Sewall Co.

Watertown, N.Y.



SCREAMING SAWS

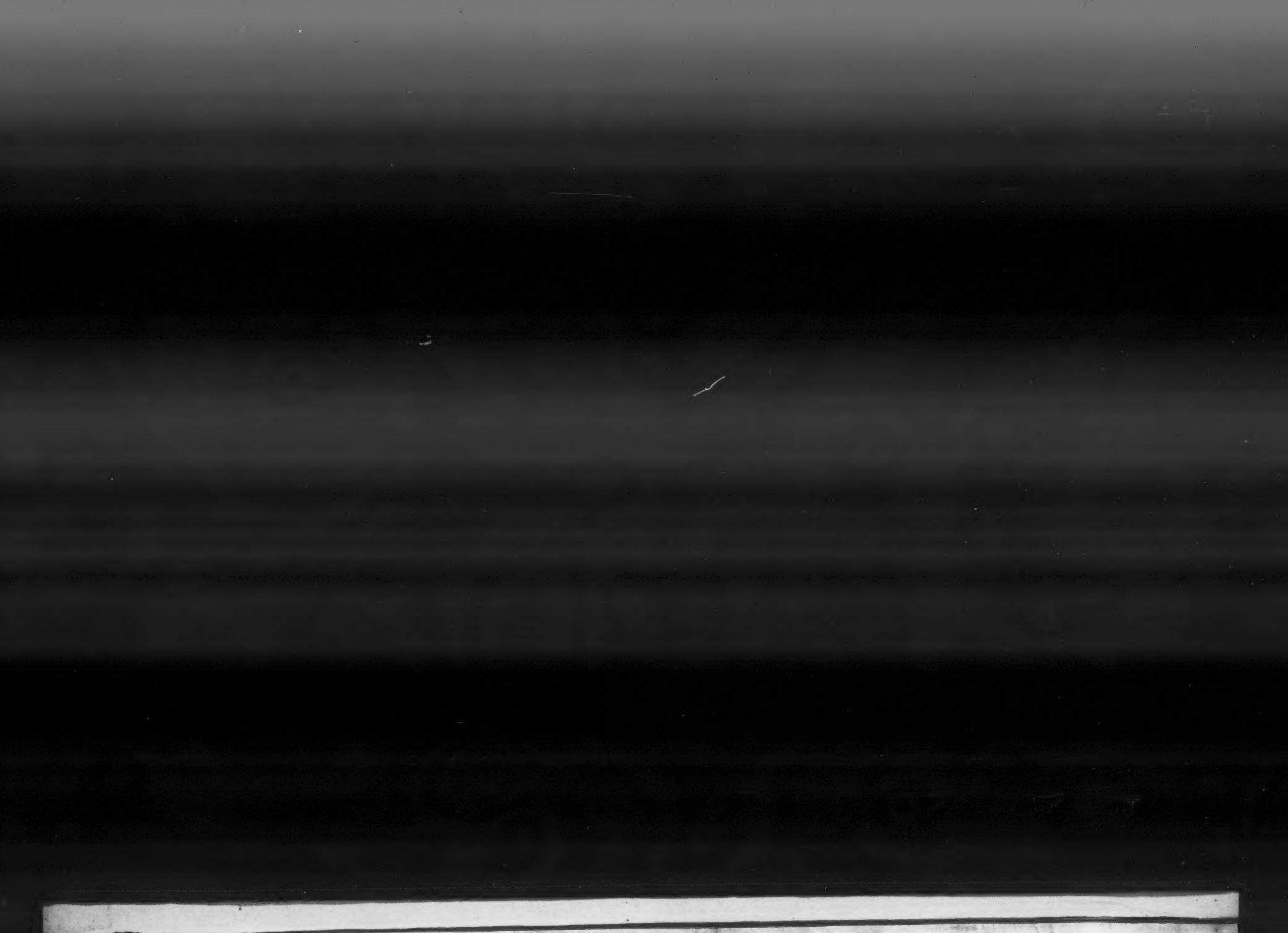
....*that sing a lullaby to superintendents*

LET the band-saw's high pitched whine miss a midnight beat, and the mill superintendent stirs restlessly. Let it die off sullenly and the "boss" is on his way to the mill.

Trouble! A shut down is costly; even a few minutes delay is serious.

Not every time, but too many times, faulty lubrication is to blame. And lack of oil is less often the cause than the *wrong* lubricant.

About *lack of oil* the Shell man can't help you. But his wide and thorough understanding of lubrication makes him a valuable authority on the *kind of oil* needed in every remote gear or bearing. His services are free; they do not obligate you in any way.

Call him in *before* you need him —he can help to keep the saws singing. The great majority of mill owners evidently value his advice, for they continually use the Shell products he specifies.

SHELL MILL LUBRICANTS